

# The Australasian MANUFACTURER

SERVING ALL INDUSTRY

Vol. XXXV - No. 1822.

Registered at the G.P.O., Sydney, for  
transmission by Post as a Newspaper.

Saturday, March 3, 1951.

In large or small industrial heating  
you can do it better . . . with

# *GAS*



Gas-fired rocking hearth furnace.



Gas-fired steam boiler.



Gas-fired atmosphere furnace  
for Copper brazing.

Whatever the heating process—or the product—or the time and temperature required for the job—you can do it better with gas and modern gas industrial equipment.

In all industrial heating gas brings the characteristics you need most—  
Speed • Flexibility • Accurate Control • Cleanliness  
• Simplicity • Adaptability • Economy.

Your Gas Company has a staff of industrial heating experts who are always ready to assist you with your heating problems . . . just dial M 6503, extension 256.

**THE AUSTRALIAN GAS LIGHT COMPANY**

Industrial Gas Division  
Haymarket, Sydney



# AFTER BUSINESS HOURS

## Our Dark Landlords

(By H. P. Meggs.)

The views expressed in articles published in this section are those of the contributors and not necessarily those of "The Australasian Manufacturer." They are selected for their interest value, whether controversial or not, and the comments of readers on the subject discussed are always welcomed by the Editor.

THE increasing interest being taken by anthropologists, explorers, popular writers and others, in the social background and organisation of our few remaining tribal Aborigines, has brought to light many interesting facts completely at variance with previously widely-held misconceptions.

It used to be generally believed that the congenial intelligence of the Aborigines was considerably lower than that of white Australians—lower in fact than that of practically all other human beings. (Their ability at "black tracking" was put down to a sort of sixth sense unrelated to intelligence). It was also believed that

they lived like animals, with no kind of philosophy and little in the way of moral code; that women ranked below the dogs in the family economy and that they were often savage and usually treacherous.

Perhaps it is over-optimistic to say such beliefs used to be held; for undoubtedly a good many white Australians still hold them.

One only has to attempt to wade through the highly complicated system of tribal relationships, as set out by Prof. Elkin in his book "The Australian Aborigine" to realize that they are not half-wits. C. P. Mountford, in his "Brown Men and Red Sand" points out that the survival

of a tribe in the desert calls for the constant application of a high standard of intelligence. Alan Marshall, in "Ourselves Writ Strange", is emphatic that the Aborigines he met in the Northern Territory lack nothing but opportunity to raise them to our level of culture, and probably all of us know of at least one or two Aborigines who have proved that this is so.

There seems to be some reason for suspicion, however, that the few remaining Aborigines still untouched by western civilization might laugh a little up their sleeves—had they sleeves to laugh up—at our confident assumption of superiority. A relative of mine, after four years on the fringe of the Western Australian desert, said that it was a most humbling experience to be inspected by a large, naked and quietly supercilious Aborigine whose obvious thought was "What sort of a worm are you, all covered up with those ugly rags?" Especially if the Monarch of All He Surveyed then turned contemptuously on his heel and, followed by all his family, marched nonchalantly off into the waterless desert, where no white man would venture without first making most elaborate preparations.

We are prone to measure civilization or culture by standards of power, pomp and mechanical achievement, and consequently to pity or despise a people who have no bombers and battleships, no cities of sky-scrapers, no movies or motor-cars . . . and worst of all, no clothes! How poor and brutish their lives must be, we think, how lacking in everything that makes life worth living!

But are they as backward as we think? While we spend millions per annum on armaments, while we send representatives to international conferences and use up millions of reams of newspaper reporting what is being done and said to foment or prevent wars, the Aborigines simply don't make war. No tribe attempts to conquer another or grasp its territory and no tribe is afraid of enslavement by a neighbouring tribe. Since they have never had any need of instruments of war, naturally they have never had any incentive to make them.

As for cities, and the magnificent architecture that is an essential part of city-building . . . well, nomads never build, and at least in the more inhospitable parts of Australia nomadism is the only way of life possible, without upsetting the balance of nature and causing soil erosion, extinction of animal and bird life, and failure of water supplies. In short, they have no incentive to build.

I would not suggest that the Aborigines did not invent, the cinema merely because they had no incentive to do so, but according to everyone who has seen a corroboree their standard of acting and dancing is frequently as high as that of the world's best actors and ballet-dancers, and to a person accustomed to active participation in such performances, the futile vapourings of Hollywood he-men and glamour-girls must seem incredibly decadent.

Speaking generally, however, A. J. Toynbee's theory that civilizations change and progress only when some stimulus or incentive urges them on, is probably well exemplified in the lives of the Australian Aborigines. From time immemorial their environment has been unchanged and they have had no stimulating contacts with the rest of the world, therefore the pattern of their lives has not altered over the centuries.

Even so, the unpolished tribal Aborigines are in many respects not so very far behind their white conquerors, and in some respects they have good reason for looking down their noses at us.

Their ignorance of sanitation and hygiene, to take one example, is as great as . . . but no greater than . . . that of the average Englishman of a century ago. Unlike our civilized ancestors, however, they believe that evil spirits will make them sick if they camp in the one spot for more than a few days . . . an improvement on the belief that the periodical plagues that decimated the old towns of England were due to divine wrath.

The status of Aboriginal women is only about fifty years behind our times . . . or to be precise, fifty-one years, since our dark

(Turn to page 36.)

LOOK YOUR BEST!



PRIDE IN APPEARANCE

We, too, have pride:—Pride in every hat that leaves our will . . . Pride in the dependable service each hat will give its wearer . . . Pride in our splendid customer relations over the past thirty-seven years.

**AKUBRA**  
hats of Quality



# DIAMONDS

## AS AN AID TO INDUSTRY AND SCIENCE

"NEVEN" metal-bonded impregnated diamond lapping wheels, cut-off wheels, handlaps, etc., will outlast several of any other make.

## PURE, EVENLY GRADED DIAMOND POWDERS

(From 40 mesh to  $\frac{1}{2}$  micron grain sizes)

Our Commonwealth-wide service offers you the most comprehensive stock of INDUSTRIAL DIAMONDS in Australia.

It is wise to remember, when purchasing Diamonds, that price alone does not convey anything without a comparison of the stones offered.

We will be pleased to assist you in the solution of your Diamond problems at all times.

## O. T. LEMPRIERE & CO. LTD.

SYDNEY • MELBOURNE • BRISBANE • PERTH

South Australia: R. E. Jackman & Co. Ltd., 57 Flinders Street, Adelaide

Tasmania: Douglas & Fraser, 41 Paterson Street, Launceston



**FERRO ENAMELS (AUST.) PTY. LTD.**

Parent Company: FERRO ENAMEL CORPORATION  
CLEVELAND, OHIO, U.S.A.

Associated Companies in: ENGLAND, HOLLAND, CANADA, FRANCE,  
BRAZIL, ARGENTINE, MEXICO, SOUTH AFRICA.

**WORLD LEADERS IN THE VITREOUS ENAMEL AND CERAMIC FIELDS**

### MANUFACTURERS IN AUSTRALIA OF:-

PORCELAIN ENAMEL FRITS AND POWDERS; COLOUR OXIDES  
FOR THE ENAMELLING AND CERAMIC INDUSTRIES; POTTERY  
CLAYS, CASTING SLIP, GLAZES, STAINS, Etc.

### ENAMELLING SUPPLIES:-

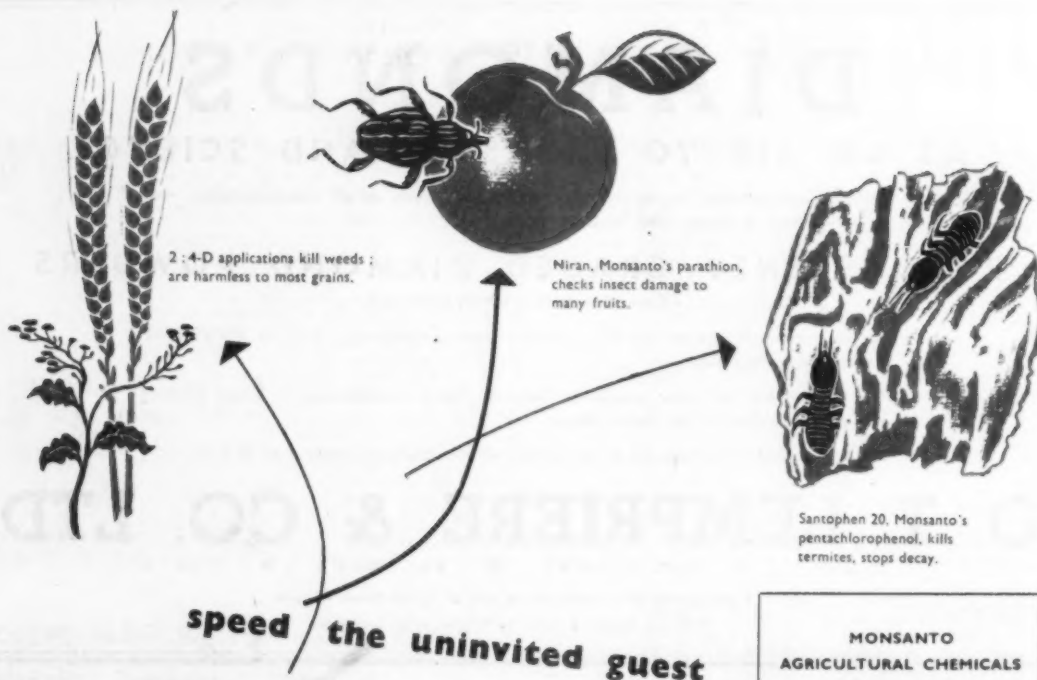
PORCELAIN MILL BALLS; PORCELAIN MILL LININGS; METAL  
CLEANERS; ASBESTOS GLOVES; ENAMELLING CLAY, Etc., Etc.

### ENGINEERS TO THE ENAMELLING AND CERAMIC INDUSTRIES - YOUR EQUIPMENT DESIGNED, SUPPLIED AND INSTALLED:-

FURNACES; KILNS; CHARGING FORKS; BALL MILLS; DRIERS;  
OIL BURNERS, BLOWERS, Etc., Etc.

27 BOURKE ROAD,  
ALEXANDRIA, N.S.W. TEL. MX 1151





## speed the uninvited guest

Every year the farmer is invaded by armies of uninvited guests. They are the weeds and insect pests that damage and destroy, leaving a path of wreckage that wastes a substantial proportion of the nation's agricultural crops. Fortunately the stay of these unwelcome invaders can be cut short by the use of the many chemicals made by Monsanto for agricultural purposes. There are Monsanto chemicals that kill smothering, strangling weeds and give crops a chance to grow and thrive.

Many fruits and vegetables are protected against costly insect damage with chemical formulations that can be sprayed or dusted. Timber and fencing posts last many years longer when treated with a Monsanto preservative. An early leader in the development of chemicals for agriculture, the world-wide Monsanto organisation continues to explore new and better ways to safeguard the nation's agriculture.

### MONSANTO CHEMICALS (AUSTRALIA) LIMITED

(Head Office) Somerville Road, Braybrook, Victoria . . . . . servicing Victoria, South Australia and Tasmania

INTERSTATE SALES OFFICES:  
New South Wales, Queensland

MONSANTO AGENTS:  
Western Australia, New Zealand

SERVING INDUSTRY . . . WHICH SERVES MANKIND

### MONSANTO AGRICULTURAL CHEMICALS

#### Weed Killers

2:4-D  
Sodium Pentachlorophenate  
Pentachlorophneol.

#### Insecticides

Niran  
Pentachlorophenol.

#### Fungicides

Fungisal O  
Fungisal W.

**MONSANTO**  
CHEMICALS - PLASTICS

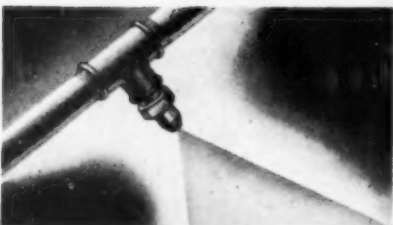


# FIRE PROTECTION ENGINEERED BY WORMALD BROTHERS



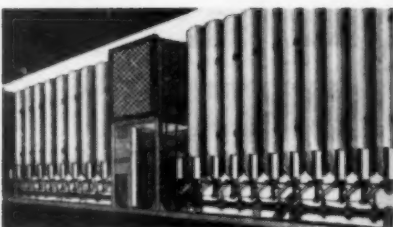
## "GRINNELL" AUTOMATIC SPRINKLER SYSTEM

Grinnell Automatic Sprinkler Systems protect millions of pounds worth of the world's property. When an outbreak of fire occurs, heat causes the sprinkler head above to open, localising the outbreak, extinguishing the fire and, at the same time, calling the Brigade.



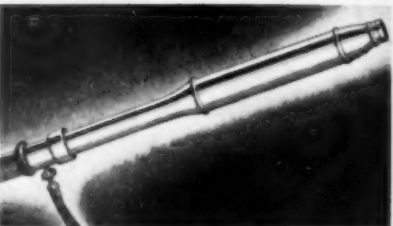
## "MULSIFYRE" SYSTEM

The "Mulsifyre" System extinguishes oil fires. A powerful spray of water converts burning liquid into an emulsion incapable of burning. Widely used to protect oil-filled transformers, oil circuit-breakers, turbine lubricating oil feeds, also all general oil risks.



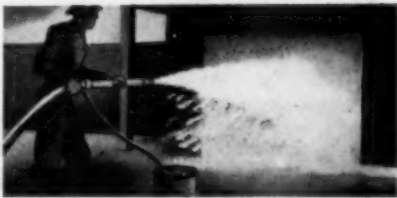
## "LUX" INSTALLATIONS

The "Lux" System, using CO<sub>2</sub> (Carbon Dioxide) Gas, extinguishes fire instantly. It can be used on intricate machinery—electrical wiring—delicate fabrics—valuable documents—volatile and highly inflammable liquids with no harmful effects.



## "NATIONAL" AER-O-FOAM SYSTEMS

The National System of fire protection provides continuous foam production for extinguishing fires in oil tanks, buildings where types of inflammable liquids are processed, ships' boiler and engine rooms, etc.



*Wormald Brothers' long-experienced engineers will make a survey of your premises or building—point out the danger spots—give you advice as to the system of fire protection suitable to your class of risk. A complete Fire Protection Service is maintained in all States and New Zealand.*

**WORMALD BROTHERS  INDUSTRIES LIMITED**

*Fire Protection Engineers Since 1889*

WORMALD BROTHERS (EAST) LIMITED — Sydney, Newcastle, Wagga, Brisbane, Townsville, Orange  
WORMALD BROTHERS (SOUTH) LIMITED — Melbourne, Geelong, Perth, Ballarat, Hobart  
WORMALD BROTHERS (S.A.) LIMITED — Adelaide  
WORMALD BROTHERS (N.Z.) LIMITED — Wellington, Auckland, Christchurch, Dunedin  
STEELBILT LIMITED — KIRSCH COMPANY (AUST.) LIMITED



# The DOT line of **TRIMOUNT** TUBING AND WIRING **CLIPS**

PREVIOUSLY IMPORTED FITTINGS NOW  
BEING MADE IN AUSTRALIA!



Made in our Australian factory on Australian developed machines and employing all Australian material, "Trimount" Clips are already being used by many industries. These time-saving fasteners take the place of screwed-on clips for holding tubes and wires to their supporting structures.

"Trimount" Clips are economical, quickly attached and permanent. Every clip is rust-proof and will keep on doing a good job.

25 types of "Trimount" Clips are now available. Others will be added as required by manufacturers.

Applicable to these trades:  
APPLIANCE • ENGINEERING • RADIO  
ELECTRICAL • AUTOMOTIVE

## **CARR FASTENER** COMPANY OF AUSTRALIA LIMITED

Enquiries are invited from all trades requiring serviceable clips in modern design. Such enquiries should be addressed to the Company's Sales Engineers in Adelaide, Sydney or Melbourne.

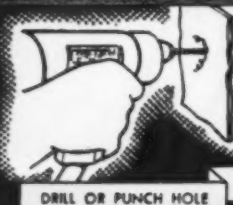
IN SYDNEY: Mr. S. B. Tonkin, 85 Commonwealth Street.

IN MELBOURNE: Mr. C. A. Muller, 355 William Street.

IN ADELAIDE: Carr Fastener Co. of Australia Limited,  
Royal Park, Alberton 1, S.A.

Telegraphic Address: "Carrfast," Adelaide

INSTANTANEOUS • RATTLE-PROOF  
ONE PART • NO TOOLS REQUIRED  
INSTALLED WHEN ONLY ONE SUR-  
FACE IS ACCESSIBLE • SAVES TIME IN  
ASSEMBLY OPERATION





## FOR DECORATING & BRANDING



THE FAMOUS SELEX DECALS ARE UNEQUALLED FOR BRILLIANT COLOUR AND DURABILITY ON WOOD, METAL, PLASTICS, RUBBER, LEATHER AND GLASS

**SELEX DECAL PTY. LTD.**

OFFICES IN ALL AUSTRALIAN CAPITAL CITIES

*Technical Associates - Canada Decalcomania Co. Toronto and The Meyercord Co. Chicago*



*Precision Tools*

## DIE NUTS

Available now in

S.A.E. AND WHITWORTH  
THREADS.

SIZES FROM  $\frac{1}{4}$ in. - 1in.

IDEAL for recutting Threads in a  
Recess or awkward positions.

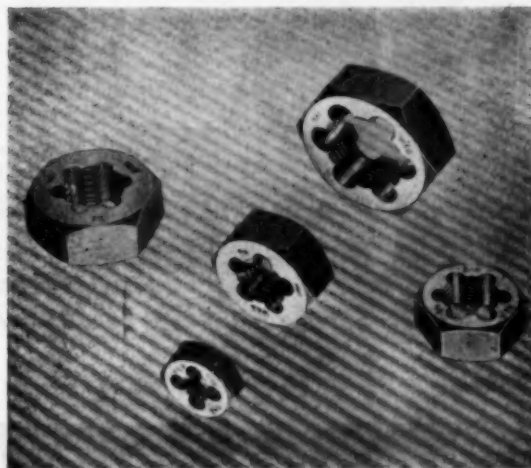
ACCURATELY made and fully  
guaranteed by:

**WARREN & BROWN Pty. Ltd.**

113 BALLARAT ROAD, FOOTSCRAY, W.11

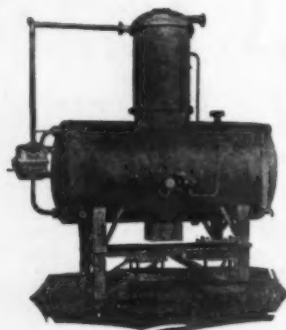
VICTORIA, AUSTRALIA

TELEPHONE: MW 1201





## BOILER PROTECTION

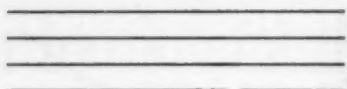


... DE-AERATING FEED WATER HEATER  
with a capacity of 40,000 lbs. Feed Water per  
hour with a Final Oxygen Content not exceeding  
0.05 C.C. per Litre.

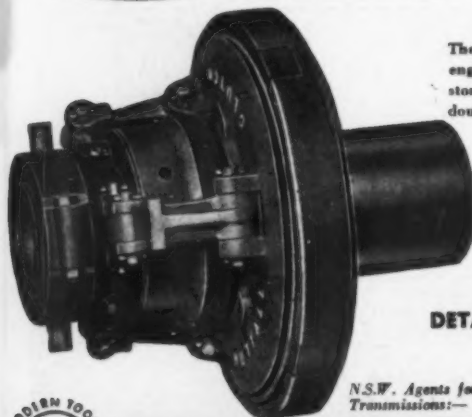
We have designs to cover a full range of De-Aerators  
and De-Aerating Hotwells.



Our experience is at your disposal, send your enquiries to:



## Friction CLUTCHES



The important story of good  
engineering is the "inside"  
story. For the answers to the  
double problem of "stop and  
start" let us send you the  
new detailed catalogue of  
NUTTALL Friction-disk  
Clutches. Made in sizes  
and ratings from frac-  
tional to 300 h.p.

SEND FOR NEW  
DETAILED CATALOGUE

N.S.W. Agents for NUTTALL Clutches and Variable-speed  
Transmissions:—



# MODERN TOOLS PTY. LTD.

Machine Tool Merchants and  
Transmission Specialists

ROSEBERY, N.S.W. Phone FF1291

We want to  
tell you the

# INSIDE STORY

[The IMPORTANT story!]





Regd.  
Trade Mark:  
TIMKEN

## THIS VALUABLE REFERENCE BOOK

Full of typical installations of Timken tapered-roller bearings in typical machines, this booklet has been found useful by many designers.

BRITISH TIMKEN LTD., Duxton, Northampton and Birmingham 7, England. (Subsidiary Company: Fischer Bearings Co. Ltd., Wolverhampton, England.)

### AUSTRALASIAN INDUSTRIAL DISTRIBUTORS:

MELBOURNE, Victoria: Bearing Service Co. of Aust. Pty. Ltd., 222 Queen Street, P.O. Box 2371. SYDNEY, New South Wales: Bearing Service Co. of Aust. Pty. Ltd., 28 Wentworth Avenue. BRISBANE, Queensland: Bearing Service Co. of Aust. Pty. Ltd., 329-331 Adelaide Street, Box 2531, G.P.O. ADELAIDE, South Australia: Bearing Service Co. of Australia Pty. Ltd., 98 Grote Street. PERTH, Western Australia: Bearing Service Co. of Australia Pty. Ltd., 835 Hay Street. NEW ZEALAND: Jas. J. Niven & Co. Ltd., 65-71 Taranaki Street, P.O. Box 1608, Wellington.

**IT PAYS**  
to control  
**TIMING** operations  
**ACCURATELY** with  
**electronics**



You'll make substantial savings in time and money with A.G.E. Electronic Timer—industry's most effective means of ensuring accurate timing of process operations. A.G.E. Electronic Timers are used for such operations as processing, cycling, sequencing, limiting, delaying, etc. Each timer is provided with a stepless adjustment over its full 20:1 timing range—the complete range of timers gives a coverage of 1/20 to 360 seconds.

A.G.E. will gladly advise you on the application of electronics to your particular industrial problems.



Electronic timer controlling time required to seal lid in manufacture of steel drums.



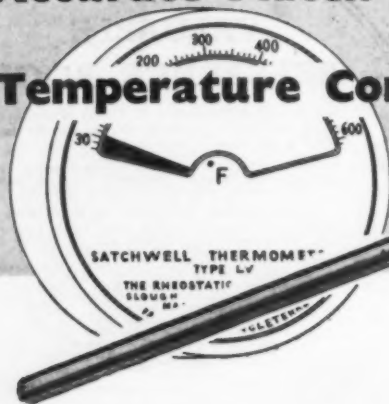
## electronic timer

AUSTRALIAN  
GENERAL ELECTRIC

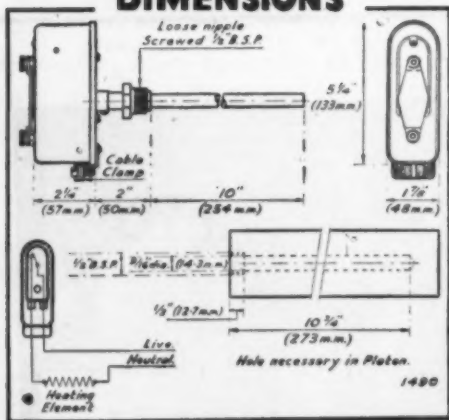
Sydney, Newcastle, Lismore, Melbourne, Brisbane,  
Rockhampton, Townsville, Adelaide, Hobart, Launceston.  
Agent in W.A.: Atkins (W.A.) Ltd.



## Accurate Platen Temperature Control



### DIMENSIONS



## SATCHWELL

### PLATEN THERMOSTATS TYPE "WB"

Designed specially to control automatically the temperature of bakelite platens and similar solid heating blocks. The use of a thermostat with such applications improves the manufacturing process by close temperature control, lower reject rate and heat energy requirements reduced to a minimum.

Satchwell Thermostats are constructed of the highest quality materials and constructed by craftsmen to give long, trouble-free service.

Temperature range—250-450° Fahrenheit.

Enquiries for other temperature ranges and further information should be made to our Technical Sections.

Sole Australian Agents:

## H. ROWE & CO. PTY. LTD.

MELBOURNE  
Flinders Court, City  
off 15 Elizabeth Street

SYDNEY  
136 Elizabeth Street  
opp. Mark Foy's

ADELAIDE  
121-123 Pirie Street  
Adelaide

BRISBANE  
95 Eagle Street  
Brisbane

H. M. Standford, 34 Macquarie St. Hobart, TASMANIA. Interstate Agents: S. Y. Garnsworthy, 69 St. George's Terrace, Perth, W.A.



## Whenever You Need RIVETS think of F.G.S.

The F.G.S. rivet-making plant is one of the largest and most up-to-date in the Commonwealth. The plant capacity in a day shift is a million rivets, a million screws, and half a million nuts.

This enormous output has been built up on accuracy, versatility, and service.

**Accuracy**, to fit exactly every time; the right hardness and toughness of metal to give uniform, clean turnover.

**Versatility** to manufacture an enormous range of bifurcated, solid, tubular, and semi-tubular rivets in steel and non-ferrous metals as well as a tremendous variety of parts by the cold-heading process (such as stepped rivets, cup hooks, swivel pins, knobs, toilet bolts, etc.).

**Service** to meet the production needs of manufacturers of all kinds.

If you need rivets in any line you manufacture, it will pay you to consult F.G.S.

## F.G.S. PRODUCTS PTY. LTD.

Euston Road and Maddox Street, Alexandria, N.S.W. Telephone: LA 5074.

### INTERSTATE AND NEW ZEALAND AGENTS:

A. H. HILLS  
Orient Line Bldg  
113 Eagle Street  
Brisbane, Qld.

W. BENNETT  
433 Spencer Street  
West Melbourne, Vic.

R. C. WOOLLARD  
18 Chesser Street  
Adelaide, S.A.

T. W. EGAN  
75 King Street  
Perth, W.A.

V. MacDONALD BRAME & CO.  
57 Collins Street  
Hobart, Tas.

J. L. GARRARD & SON LTD.  
Customhouse Quay  
Wellington, N.Z.







### "Q & S" 6" SAWMASTER HACKSAW

The 6-inch "Sawmaster" Hacksaw has a solid cast-iron frame. The saw frame runs in prismatic guides, ensuring a square and parallel cut. The cut takes place on the draw stroke, and the blade is hydraulically lifted out of contact with the work on the forward stroke to prevent wear on the blade. Drive is by a  $\frac{1}{2}$  h.p. motor through vee ropes fully adjustable for tension.

Send for fully descriptive leaflet.



### "Q & S" GRINDING MACHINE

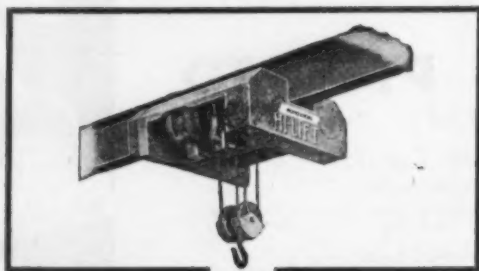
The "Q & S" range of motor-driven Grinding Machines comprises 10in., 12in., 14in. and 16in. wheel sizes. Designed on clean, robust lines and built from the finest materials. They are heavy-duty machines which will operate under adverse conditions with a minimum of maintenance.



Europe House, Smith Square, London, S.W.1. Cables: "AKERENE," London.  
Agents: Brown & Dureau Limited, Sydney (FA 8236), Melbourne (MU 8621), Adelaide  
(Central 4238), Brisbane (FA 1901), and Perth (B 9291).

## MONOSTEEL

REGISTERED TRADE MARK NUMBER 79921



Motorised Hoists are available  
also, for straight or radius travel.

## HI-LIFT ELECTRIC HOISTS

Monosteel originated, designed and pioneered production in Australia of the fabricated all-steel Hi-Lift Electric Hoist featuring automatic Brake release, totally enclosed Worm Gears, Ball-raced Bearings and Pull Cord or Push Button operational control.

We supply Monosteel Hi-Lift Hoists for every form of travel and in any of the following sizes: 750 lbs., 1,500 lbs., 2,250 lbs., 3,000 lbs., 5,000 lbs., 7,500 lbs., 12,000 lbs. lifting capacity.

For quotations and installation details, contact . . .

## MONOSTEEL HI-LIFT ELECTRIC HOISTS

24 BOND STREET, SYDNEY. Tel.: BU 2093.

DISTRIBUTING AGENTS:

BRISBANE: Queensland Machinery Co. Ltd. NEWCASTLE: Martin De Launay Pty. Ltd. PERTH: Harris, Scarfe & Sandovers Ltd. ADELAIDE: John H. Law.



# Cornerstone OF INDUSTRIAL PROGRESS

Ability and Experience are  
at your Service whether your  
needs be Materials or the  
Engineered Product

NON-FERROUS  
METALS

MATERIALS  
HANDLING  
EQUIPMENT

ENGINEERING  
EQUIPMENT

ALLOY STEELS  
SUPER WELD  
TOOLS

MINING  
EQUIPMENT

ELECTRICAL  
APPLIANCES &  
ACCESSORIES

LAMPS  
LIGHTING  
RADIO

WIRES &  
CABLES

REFRIGERATION  
VENTILATORS &  
AIR CONDITIONING

INDUSTRIAL  
HEATING &  
COOKING

ELECTRIC  
MOTORS

ELECTRICAL  
CONTROL &  
SWITCHGEAR

METERS &  
INSTRUMENTS

SPORTING  
SUPPLIES

HARDWARE

## NOYES BROS

(MELBOURNE) LIMITED

ELECTRICAL ENGINEERS - MERCHANTS

597-603 LONSDALE STREET, MELBOURNE, C.I.  
PHONE: MU 9031



MELBOURNE    ADELAIDE    HOBART    LAUNCESTON    PERTH  
MILDURA    BROKEN HILL    DEVONPORT    KALGOORLIE (W. G. Manners & Co.)    GERALDTON



**INDUSTRIAL AND FANCY CHAINS  
BUILDERS' AND GENERAL HARDWARE  
EYELETS AND RINGS  
PAPER FASTENERS AND BINDERS  
GENERAL METAL STAMPINGS—BRASSWARE  
WIRE FORMING—CURTAIN HOLDERS  
CURTAIN ROD BRACKETS—CURTAIN RINGS  
PICTURE AND MIRROR FITTINGS**

**FIRST YEAR OF PLANNED EXPANSION**

*Our modernised plant will be operating in all sections, and of special interest will be increased production of all lines, particularly:*

**BEAD, CHANDELIER AND JACK CHAINS**

**PAPER FASTENERS**

**Hipkiss (Sales) Pty. Ltd.**

**ALEXANDRIA, N.S.W., BOX 1, P.O., ALEXANDRIA, N.S.W.**

**DISTRIBUTORS OF HIPKISS, KERSHAW (AUST.) PTY. LTD. PRODUCTS**



Full information concerning our products available from:

*Representatives:*

<b>VICTORIA:</b> R. W. WARRELL PTY. LTD. 31 Niagara Lane, MELBOURNE	<b>SOUTH AUSTRALIA:</b> H. W. FARLEY & E. W. FAHY 127 Pirie Street, ADELAIDE	<b>WEST AUSTRALIA:</b> N. J. CHURCH 8 "Economic" Chambers, PERTH	<b>QUEENSLAND:</b> A. E. ALLEN 210 Queen Street, BRISBANE
<b>TASMANIA:</b> Mr. Eric T. Meagher, Macrow's Building, 147 Liverpool Street HOBART, TASMANIA		<b>NEW ZEALAND:</b> Messrs. D. J. Robertson Co. Ltd., 84 Stafford Street TIMARU, N.Z.	





## 'This is the problem gentlemen ...'

Familiar words ! Whenever it's a question of new equipment or maintenance problems arise. That's why industry is turning more and more to the Dunlop range of Industrial products. And for good reasons too. Not only is there a complete range to suit every job—but also the valuable advice available from the Dunlop Technical Service to help you get the utmost efficiency from the start.

Whatever your particular problem, if it's related to any of the following products, 'phone or write to your nearest Dunlop branch and an expert will be on the job with you right away.

### DUNLOP PRODUCTS FOR INDUSTRY INCLUDE :

Wedgeropes	Protective Clothing	Industrial Tyres
Conveyor Belting	Synthetic Rubbers	Acid-resisting Linings
Flat Transmission Belting	Industrial Helmets	Rubber Flooring
Elevator Belting	Industrial Hose	Packings and Jointings

# DUNLOP

## Mechanical Products

DUNLOP RUBBER AUSTRALIA



LIMITED (INC. IN VIC.)



# PACKING ROOM & GOODS HANDLING EQUIPMENT

Move It The

## Ransomes

Electric Way

FORK TRUCKS: One-ton and Two-ton Models.  
PLATFORM TRUCKS: Fixed and Elevating Platform.  
TOW MOTORS: One-ton and Six-ton.  
TIPPING TRUCKS: Rear or Side.  
CRANE TRUCKS, TIERING TRUCKS, Etc.

Ask for RANSOMES' Brochure.

Weston's are Sub-distributors for N.S.W.



## STACKING MACHINES ELECTRIC—HYDRAULIC

- ★ 10-cwt. capacity.
- ★ Mast hinged for doorways.
- ★ Liberal area of platform—36 x 30.
- ★ Designed for use with lift trucks and platforms.
- ★ Positive controls—Dead man action.
- ★ Ball-bearing wheels.
- ★ Approved by Lifts and Scaffolding Branch of N.S.W. Department of Labour and Industry.

Available with various types of platform including:

STANDARD PLATE, FORK, TIPPING, ROTARY or ROLLER

- Steel Strapping Machines
- Steel Strapping and Seals
- Gummed Tape and Dispensers
- Dorex Cellulose Tape
- Stapling and Tacking Machines
- Staples (all types)
- Hammers and Hatchets
- Nail Extractors and Case Openers
- Wrecking Bars
- Bale Busters
- Fountain Stencil Brushes
- Utility Ink Markers
- Stencil, Inks-liquid and Blocks
- Crow, Spud and Pinch Bars
- Twines and Cordage
- Trucks of all descriptions
- Hand and Store Trucks
- Wheels and Castors
- Box and Case Nailing Machines
- Stencil-cutting Machines
- Case and Bag Hooks

*If you can't find what you are looking for in the above list, please contact our Sales Department to-day*

MELB.: 188 Bay Street, Port  
Melbourne, Vic.  
(MX 6043)

BRIS.: 121 Eagle Street,  
Brisbane, Qld.  
(B 3327)

NEWCASTLE: Organisation  
Pty. Ltd., King & Perkin  
Streets, Newcastle.  
(B 1637)



**Westons**  
MODEL WESTON'S PTY. LIMITED



WESTON HOUSE, MACQUARIE PLACE, SYDNEY

Telephones: BU 3346-7-8, BU 3761, BU 2118 and BU 2470

ADEL.: 93 Flinders Street,  
Adelaide, S.A.  
(Cont. 5527)

PERTH: 18 William Street,  
Perth, W.A.  
(B 6693)

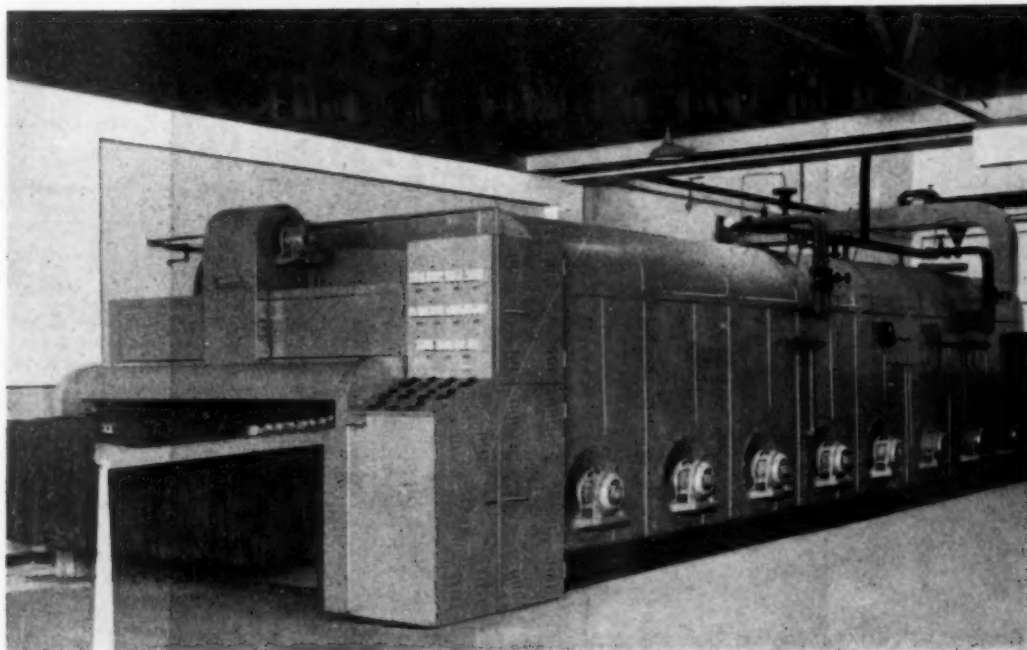
CAIRNS: P. L. & G. Potter,  
91 Grafton Street, Cairns.  
(Cairns 3188)



*Hurricane-*  
FORCED AIR HEATING.

Australia's Leading Industrial Drying Engineers have pleasure in announcing another outstanding achievement to add to their long list of Baking and Drying Installations

## WOOLLEN HANK DRYER



TRAVELLING POLE TYPE HANK DRYER. CAPACITY: 1,000 LB. DRIED HANKS PER HOUR.

### SAVE FLOOR SPACE, LABOUR AND STEAM

- The "Hurricane" Dryer produces more poundage per unit of holding capacity than competitive machines. 1,000 pounds of dried wool stock in 34 lineal feet of conveyor.
  - Low cost drying averages 1.8 pounds of steam per pound of moisture evaporated.
  - Mechanical features include: Heavy Duty Steel Extended Surface Steam Heaters with Air-Filters, Variable Speed Drive, Anti-friction Bearings, Planned Lubrication, Light Fabricated Stainless Steel Poles.
  - High efficiency due to high velocity air being forced through the moving bed of stock. The air does not pass over the surface of the stock as in some other types. Hence high production rate and saving in factory floor space.
  - Superior quality of dried stock to that obtained from older machines because the stock is subjected to the heat for a shorter period of time. The air system is scientifically based on the correct theory of drying. Cool, conditioned air is first applied to the dry leaving stock, and hot moist air is only applied to the wet entering stock.
- This principle ensures economical drying with improved lustre, handle and uniformity.

**TWELVE MONTHS' GUARANTEE WITH EVERY INSTALLATION**

**WESSBERG & TULANDER PTY. LTD., *Industrial Drying Engineers***

140-144 QUEEN STREET, ALEXANDRIA, N.S.W. Phones : MX 1241, MX 1552



## Use **LESS** oil . . . and save engine wear!

Pour dirty crank-case oil into Streamline container, up to mark on dip rod.

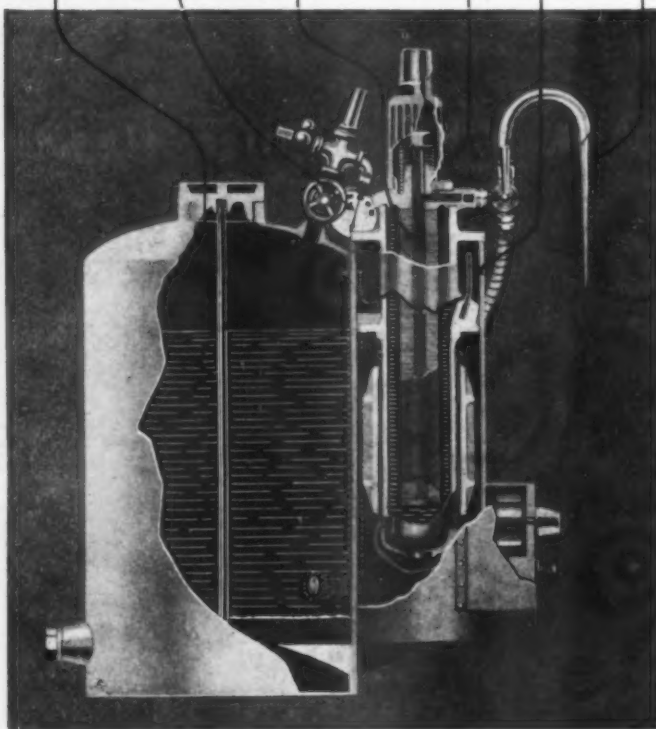
The container is then pumped up to the pressure shown on the gauge (30 lb.).

The Streamline Filter Pack collects all carbon, dirt, metal and other solid matter.

Accumulated dirt is blown off by allowing compressed air to escape through pack.

Filter heat is indicated by thermometer and regulated by thermostat.

Clean, bright oil runs out here. Capacities range from 1 to 500 gallons per day.



Dirty crankcase oil is made good as new with a Streamline Oil Renovator. The smallest will repay its cost, in oil saved alone, in less than a year. The largest have sometimes returned their cost in a month or more. And engine wear is saved because of reduced carbon content of oil renovated by Streamline. Write in for full particulars and detailed estimates.

### **STREAMLINE OIL RENOVATOR**

*For all gas, petrol and oil engines.*

## **Gibson Battle & Co. Limited**

535 Kent Street, SYDNEY. Tel. M 6661

262 Hunter Street, NEWCASTLE WEST

## **Gibson Battle (Melb.) Pty. Ltd.**

84 William Street, MELBOURNE. Tel. MU 8791

Queensland: Underhill, Day & Co. Pty. Ltd., T. & G. Building, Brisbane.



# The Australasian MANUFACTURER

Established 1916

35th Year of Service to Industry

Telephones: Sydney, BU 3493, BU 3494.  
Melbourne, FJ 3256.

Postal Address: Box 1687, G.P.O., Sydney and  
Box 4525, G.P.O., Melbourne.

PRICE 1/-

PAGE NINETEEN

MARCH 3, 1951.



## All-Round Industrial Expansion

Latest figures released by the New South Wales Statistician, Mr. S. R. Carver, disclose eminently satisfactory conditions throughout the whole field of manufacturing industry. These conditions, moreover, have their counterparts in each of the other States. The final upshot is a Commonwealth industrial economy solid in its foundations, consistent in its growth, and rich in its promise of rapid future advancement.

IN N.S.W., for example, net value of factory production for 1949-50 touched the £283,101,000 mark, reaching this peak from 1938-39's £90,266,000. Obviously, factory establishments were on a corresponding up-grade, being 16,346 in 1949-50 by comparison with the earlier period's 9,464.

New South Wales, the very core of the Commonwealth's iron and steel production, registered vital increases in the "heavy" industries group, net production value of industrial metals, machines, implements, and conveyances rising from £31,691,000 in 1938-39 to £113,059,000 in 1949-50. The following figures clearly indicate the consistent expansion which continues to characterise this sphere, net value of production from 1939 to 1950 being: 1939, £31,691,000; 1945, £72,659,000; 1946, £62,571,000; 1947, £74,536,000; 1948, £90,897,000; 1949, £101,617,000; and 1950, £113,059,000.

Important developments also occurred in the manufacture of chemicals, paints, oils, and soap, net value of factory production of which

rose from £6,393,000 in the first period to £22,191,000 in the second. Other sections registering sharp increases were clothing from £6,227,000 to £23,260,000 and textiles from £3,553,000 to £14,956,000 in the respective periods.

In view of recent years' large increases in the basic wage, the fact that the salaries and wages bill has leapt from £44,506,000 in 1939 to £162,147,000 in 1950 will cause little or no surprise.

The statistics as published, while providing much useful information, still lack facts which are of fundamental importance to those engaged in manufacturing operations in this country, as well as to those contemplating the launching of new undertakings. Most notable omission is a record of the man-hour output of individual workers in individual industries, by comparison with workers engaged in similar crafts in countries overseas. Comparative records in this regard rank among the most significant in the whole ambit of manufacturing statistics.

## What Constitutes a Luxury Industry?

The Federal Treasurer, Mr. Fadden, has announced he intends to recommend an intensification of capital issues control in order that the stream of capital may be so regulated as to ensure that it shall flow only to those industries having a bearing on defence in which increased output is a matter of urgency.

THIS, together with the other attacks which have been made recently on the so-called "luxury" undertakings, raises a number of interesting queries. First, what exactly constitutes a luxury industry? Second, who can decide where necessity ends and luxury begins? Third, are the industries of this nation to be maintained indefinitely on a near-war basis? And fourth, for how long are Australians to be deprived of the comforts and the enjoyments which have become the common everyday possessions of the peoples of the industrial nations overseas?

Perhaps the most striking examples are the electrical "servants" which have robbed housework of its erstwhile drudgery. Who will dare to describe an electric iron as a luxury? Or a refrigerator? Or a vacuum cleaner? As a matter of fact, they are rightly regarded as much part of

the standard equipment of a home as a gas or an electric stove. And by what process of logic can radio sets, and accessories, be designated a luxury? "The Manufacturer" is not here, of necessity, enumerating lines which have been placed by the Federal Government in the luxury class. Rather is it endeavouring to demonstrate that the luxuries, so called, of yesterday, have become the necessities of to-day.

Indeed, it is safe to go much further and describe as present-day necessities the face-powder, the rouge, and the lipstick which experienced in World War II proved to be essential to the morale of the women in the auxiliary Forces and of those engaged in the vital task of munitions production. These, and scores of kindred lines, have long ceased to be luxuries and have become instead necessities of everyday feminine life.



## THE AUSTRALASIAN MANUFACTURER [Page 20, March 3, 1951.]

Indeed, World War II proved beyond all shadow of doubt that women's "war paint" was as essential to their morale as were munitions to the men in the firing line.

In drafting his controls, the Federal Treasurer must see to it, therefore, that he does not ask the Australian people to wait for an indeterminate period for the things which the advanced nations abroad are already enjoying to the full. It would seem, on present indications, that we are destined to live for periods beyond our reckoning under the threat of war. If, throughout any such long spaces of time, development is to be restricted and restrained, how are Australians to lead the full life to which they are entitled, enjoying the rich fruits of modern science and research?

Here it may well be asked: How much labour does the Federal Government expect to draw to what it terms essential production by its policy of control and restraint? On the most optimistic reckoning, the

numbers would be small—far too small to constitute any really worthwhile solution of the labour problem.

"The Manufacturer" recognises that a few, very few, lines may be termed "luxury." Admitting this, the question still arises: Would the workers withdrawn from such undertakings make any material contribution to the defence labour force?

By and large, controls are anathema to the spirit of free enterprise. They stifle initiative. They blight enthusiasm. They set limits to the launchings into fresh fields.

Not for one moment, and not in any department of her economy, must Australia jeopardise her security.

She can, however, set about the adequate protection of her shores while at the same time permitting those industrial developments which make for full and free adult nationhood.

# Pithy Jottings of Industry and Industrialists

## ABRASIVES' EXECUTIVE VISITS AUSTRALIA.

Mr. Milton P. Higgins, President of Norton Company, Worcester, Mass., U.S.A.—of which Australian Abrasives Pty. Ltd. is a subsidiary—arrived in Australia, with Mrs. Higgins, on Friday, 16th February. Mr. Higgins will discuss expansion plans with the manage-

dustrial development of the Commonwealth.

## NEW MELBOURNE MANAGER —WESTONS PTY. LTD.

Mr. J. F. Monks has been promoted to Melbourne manager of Westons Pty. Ltd., packaging experts. Mr. Monks has been with the firm four years. He started

been appointed Managing Director, whilst General Sir Hubert Gough, is Chairman of Directors. The former Governor-General of Australia, The Rt. Hon. the Earl of Gwelo, V.C., has been appointed Vice-chairman.

## RONALD TRIST REPRESENTATIVE VISITS AUSTRALIA.

Among the recent arrivals from overseas is Mr. E. Corke, of Ronald Trist & Co. Ltd., Slough, England.

While in Australia it is Mr. Corke's intention to visit all States of the Commonwealth, not only to investigate the market potential for his company's products, but to make a study of the particular requirements of the Australian industry in this respect.

Ronald Trist & Co. Ltd., while well-known in Australia for their Boiler Feed Regulators and Liquid Level Controls, are also among the leading British manufacturers of Packings and Oil Seals. Realising that the Australian demand for this equipment calls for an "on the spot" study, it was felt that a representative from the company, fully experienced in the application of their equipment, should visit us.

Mr. Corke has had a wide experience in the application of Controls and Packings, not only in England but throughout the Continent, and is therefore in a position to give practical advice on the most efficient use of these items.

Good & Clyde Wilson-Reid Pty. Ltd. represent the Boiler Feed and Liquid Level Control section of Ronald Trist & Co. Ltd. in Australia, and any enquiries in respect of the whole of the equipment made by the Company can be forwarded to Mr. Corke through the agents.

## DEATH OF LEADING SAW-MILLING EXPERT.

It is with regret that we announce the sudden death last month of Mr. Horace Bennett, who was for many years associated with Goodall & Co. Pty. Ltd., ma-

chinery merchants, of Kent Street, Sydney.

Mr. Bennett was responsible for the manufacture and supply of the heavy sawmilling equipment whilst with this firm, and it is generally recognised that he was indeed a master in this particular branch of the woodworking machinery business.



The late Mr. Horace Bennett, who for many years was associated with Goodall & Co. Pty. Ltd., of Sydney.

During the period of the last war, Goodall & Co. Pty. Ltd. supplied to the American forces in the Pacific, a large number of saw mills. This plant was supplied under the direct supervision of the late Mr. Bennett, and the satisfactory reports from the U.S.A. authorities reflected great credit on him and the Goodall company. Since the war, a large number of these mills have been supplied to many concerns, and the careful attention to customers' requirements typified his characteristics. His early days were spent in the logging industry in Canada, and at a later date he



Mr. Milton P. Higgins, President of the Norton Company, of Worcester, Mass., U.S.A., who recently arrived in Australia, with Mrs. Higgins.

ment of Australian Abrasives Pty. Ltd., and will also have talks with prominent business leaders regarding Australian industrial development and potential.

Norton Company is the world's largest manufacturer of grinding wheels, sharpening stones and abrasive products. It has large plants, not only in America and Canada, but also in England, France, Germany, Italy, South Africa and Australia.

Mr. Higgins, a man of broad vision, believes there is a great future for this country, and that Australian Abrasives Pty. Ltd. will play an important part in the in-

work in the head office store room of the Company and graduated from there to the sales floor.

## DEATH OF SIEMENS' MANAGING DIRECTOR.

Siemens (Australia) Pty. Limited announce the death in London, on 13th January last, of Dr. H. R. Wright, Managing Director of Siemens Bros. & Co. Ltd., London.

Dr. Wright held office as Managing Director for more than 25 years, and was also Chairman of Directors since the retirement of Lord Queensborough in 1944.

Mr. F. A. Lawson has now



became associated with the Yates Machinery Company of Canada. During that period he travelled all over Canada and U.S.A. as plant engineer and inspector. He later became the Yates' Machinery Co.'s representative in N.S.W.

Approximately 14 years ago he joined the organisation of Goodall & Co. Pty. Ltd., and for the whole of that period became associated with most of the firms in the timber industry and was well known by all.

He was a man of a very lovable nature, and although keen in business, never spared any effort to supply the customer with exactly the goods he required, and he made many friends and no enemies during his business career.

His loss to the timber interests in general is irreparable, and we are sure that the whole industry joins with Goodall & Co. Pty. Ltd. in lamenting the loss of such a fine personality.

#### AMENDMENTS TO CAPITAL ISSUES REGULATIONS.

The Federal Treasurer, Mr. Fadden, announced during the past week a series of amendments to Capital Issues regulations. "Companies which received automatic approval of capital issues before the Government reimposed controls," he said, "must act upon the approvals within a reasonable period. If a company fails to do so, it will require to apply for a new consent, which consent will be granted only for purposes specified by the Government." Mr. Fadden further announced that consents granted up to November 22nd last will expire on the dates specified or, if no date was specified, on May 22nd next, while those granted after November 22nd will expire on the dates specified, or six months after the granting of consent.

#### DUNLOP RUBBER'S ART CONTEST.

Dunlop Rubber (Australia) Ltd. is to be congratulated on its practical patronage of art. This takes the form of an annual art contest, the second of which closes on April 28th. Prizes to the value of £1,000 are awarded by the company, the first being £300.

Entry forms are obtainable from State art galleries, art societies, other art bodies, or any branch of the Dunlop organisation.

#### IMPORTANT ACQUISITIONS BY PALGRAVE CORP.

It is announced that Palgrave Corporation Ltd. has acquired the paid-up capital of Hackasava (Aust.) Pty. Ltd. and of Kanimbila Granite Co. Ltd. and has also acquired holdings in Verolite (A'asia.) Pty. Ltd. and Concrete Developments Pty. Ltd.

#### NEW WORKS FOR CYCLONE.

The Cyclone Co. of Australia, Ltd., is planning a new factory in Brisbane. The company is erecting a factory at Moorabbin (Vic.) for production of screen wire.



## IT'S EXPERIENCE THAT COUNTS

Modern industrialisation has made it possible to turn out rapidly and efficiently products which in the past called for slow and painstaking work by a relative handful of skilled artisans, whose craft secrets were handed down from father to son through the generations.

The machine has solved the problem of mass production, but the making of a quality product is not only a matter of machines and labour. It calls for clear thinking by fully trained engineers and researchers, and the application of their knowledge to the design of the finished article.

And this is one of the reasons for Rola Company's leadership in its three chosen fields—radio loudspeakers, magnet winding wires, and permanent magnets. Its team of skilled research workers is backed by the latest electronic tools and buttressed by a wealth of experience in the problems of design.

## ROLA CO. (AUST.) PTY. LTD.

THE BOULEVARD, RICHMOND, VICTORIA  
and

116 CLARENCE STREET, SYDNEY



Our editorial representative in each State makes regular calls on manufacturers, and if you wish to see some particular phases of your business given publicity, communicate immediately with the Editor, and he will arrange for a representative to call.



## Around & About the FACTORY

A digest of new factory and plant constructions, additions, alterations and improvements, and operating news of Australian industry.

### Move Out of Town

#### Packaging Machinery Company Solves Many Problems

Decentralisation of Industry and Town Planning are terms heard on many occasions—yet it seems safe to say that neither is commonly accepted as being, to a great extent, an existent force. They are widely regarded by many as a nice theory for academics.

In fact, there are many practical examples of both to be found and they are increasing all the time. A case in point is the new factory of Advance Machinery Co., Pty. Ltd. at Commercial Road, Kingsgrove, Sydney. This suburb is amongst Sydney's newest, and looking over it from a slight hill nearby a great harvest of new tiled cottage roofs can be seen. Yet the industrial section has not been overlooked and has been planned to go in specific places.

Commercial Road was not considered entirely suitable for a residential area; it butts on to the railway line which forms a dead end some 150 yards from the mouth, which opens on Kingsgrove Road near the centre of Kingsgrove shopping centre. These disadvantages for housing were turned into advantages when it was decided to declare the area an industrial one. It is about three years since the first factory went there, and they now number a score or so. One of the most modern is that of the Advance Machinery Co.

This building has a cement rendered facade, painted cream, which houses the offices. Behind this a workshop area about 200 ft. long and 80 ft. wide is provided. The walls are concrete brick to a height of six feet above which asbestos sheets supported on a steel frame, go to the saw-tooth roof. Ample light is admitted through the roof to permit working under natural light in almost any circumstances during daylight.

The firm's products—gluing and gumming machines, carton closing and sealing machines, packaging machinery and conveyors and many others, were previously made at Sussex Street, Sydney.

Those premises are now used as

a show room, and all manufacturing is now done at Kingsgrove. Certain advantages swiftly followed the move. Staff became easier to obtain and the firm actually keeps a register of names of qualified technicians who seek employment there and who have asked to be advised when a

vacancy occurs. Secondly, output has increased and new lines have been contemplated.

The manufacture of much of the "Advance" machinery should be of special interest to other manufacturers since it is designed to make their own task easier. "Advance" packaging machinery, for example, is being installed in many Australian factories. For this reason we intend to publish in the near future an illustrated report of the firm's new factory and of their production methods.

### Business Foresight Paved The Way

#### For Australian-made Packings

Mechanical packings play an essential part in engineering work and the tremendously wide range and variety covers the whole field of almost every mechanical moving part.

In the early days of engineering, it was a constant source of worry to discover some means of preventing the escape of pressure and it is generally conceded the first mechanical packing was used in an early form of water pump. It was found by winding hemp fabrics round the piston, it provided a certain amount of sealing which improved the pump's efficiency. Other steps toward finding a better packing naturally followed until to-day there is a packing for every purpose.

From that early development, research and trial have emerged the modern system of packing. But basically the modern packing rings are derived from duck and rubber. Among these was the Garlock Chevron and Tulip Automatic types which generally consisted of fabric material, such as duck, bonded with a mixture of rubber or its compounds and varying amounts of other substances.

The advent of the synthetic rubbers has enabled the designing engineer to employ mineral or vegetable oil and substances of a corrosive nature when designing rings for some special work. Rings have been designed without any fabric or material reinforcement, while

others, in which the reinforcing medium has been a type of flock, do not seem to have been very successful.

Automatic packings rings are of varying design but the principles remain the same. In all cases, it is the pressure of the fluid or gas that forces the sealing lips against the wall of the cylinder and against the shaft or piston, and the more the pressure, the more the sealing effect. Of course, the ring must be sufficiently strong to transmit this force and resilient enough in reciprocating or oscillating equipment to stand up to constant application and removal of the working pressure.

In the manufacture of these essential components, the Tulip Packing Coy. Pty. Ltd., of 477 Latrobe Street, Melbourne, has established itself firmly by reason of the excellence of its products and its enormously large range.

Tulip packing was first made by the Company in 1940 when the firm foresaw the restriction of mechanical engine packings, particularly from U.S.A. At that time the firm's chief engineer, Mr. G. Turner, was conducting experiments and, as a result, was convinced that automatic packings of the Garlock Chevron type could be made locally. It was then decided to put the idea into action.

After much experiment and attendant disappointments, six rings (2½ in. x 3½ in.) were produced. That

was the initial step of a general advance. The first set of Tulip rings were fitted to a brass top adaptor ring and installed in a weir pump at the West Melbourne works of the Metropolitan Gas Co. From then on the business grew rapidly and moulded Tulip rings were required in increasing quantities by all branches of the armed forces as well as industrial organisations. In 1941, Mr. Walter France, of London, was appointed factory manager. Under his expert guidance, the range of production expanded and now embraces the full list of products so well known in industry. And it was decided to call the products "Tulip" to signify a two-lip packing.

The company issues a catalogue that gives details of its packings that appear to have a limitless range and application. They include packings for semi-metallic use, centrifugal pumps, acid, petrol and possibly every conceivable use to which, because of its construction, they require no gland pressure and where the gland merely holds the packing firmly in position.

### Making A Ball-pointed Pen

#### Intricacies In Industry

In many industries the application of minute measurements and mechanical exactness plays a vital role and is an essential part of manufacture. Take, for instance, the manufacture of such an article now in almost everyday use—the ball-pointed fountain pen.

The process of manufacturing such an item calls for mechanical precision to get the "ball" down to the 32nd part of an inch. That is really microscopic work that requires both technical skill and concentration. And one 32nd part of an inch is a small point of measurement, indeed. This is one of the intricate requisites needed by Scribal Pty. Ltd., of 120 Church Street, Richmond, Victoria, in its manufacture of ball-pointed pens.

The firm specialises in making these pens and turns them out in

(Turn to page 24.)



# More For Your Money with *CONVEYANCER*

## THE BRITISH FORK LIFT TRUCK THAT'S BUILT FOR *Continuous Material Flow*

### Every Conveyancer Model has these features—

- Turns within its own length — *high manoeuvrability in narrow aisles.*
- Special springing and low centre of gravity — *smooth running on any surface.*
- Planned grouping of all controls — *easier operation.*

### Full range of attachments for specialised handling—

Extension Boom, Crane, Self-Discharging Scoop, Single Fork, Swivelling Fork Carriage and Grabs.

Whatever your handling job—get Conveyancer and make all these savings—

**IN TIME** . . . Eliminate slow, costly, manual handling—speed up every phase of materials handling and storage.

**IN SPACE** . . . Utilise "dead" storage space—stack and tie to ceiling level, leaving floor lanes unobstructed.

**IN LABOUR** . . . Replace a whole gang with one Conveyancer—get more work per man-hour—release men for productive work.

**IN MAINTENANCE** . . . Cut maintenance costs with Conveyancer—British built for continuous handling and backed by organised facilities for service, spare and technical assistance.

**IN OVERALL COSTS** . . . Reduce handling overheads all round—smash bottlenecks—with Conveyancer.

A comprehensive range of models for use with 36 in. or 46 in. pallets—petrol-electric, battery-electric, petrol-engine and diesel-engine drive for light, medium and heavy duty operations.  
All Conveyancer Fork Lift Trucks are sold in accordance with the requirements of the Dept. of Lifts and Scaffolding (N.S.W.).



BALES  
BARRELS  
BOXES  
BRICKS  
CANS  
CAR ENGINES  
CASTINGS  
CEMENT  
CHEMICALS  
CLAY  
CINDERS  
COKE  
COAL  
CRATES  
DRIED FRUITS  
FERTILISER  
FORGINGS  
FRUIT  
FISH  
GRAVEL  
LIME  
MEAT  
ORE  
ROCK  
SAND  
SOAP  
SLAG  
SUGAR  
SAWDUST  
TILES  
WOOL BALES

Illustrated at right: The Conveyancer Mark XV1.  
Diesel-engine drive with twin pneumatic tyres, 12-foot lift (full loaded) in 18 seconds—rated for heavy duty.



**CONVEYANCER**

LOWEST PRICED ALL-BRITISH  
FORK LIFT TRUCK ON THE MARKET

SOLE AGENTS  
JAMES H. BERRY MERCHANDISING PTY. LTD.

### D I S T R I B U T O R S

**N.S.W.: LARKE, NEAVE & CARTER LTD.**  
141 PARRAMATTA RD., CAMPERDOWN; LA 3601  
**VIC.: POWER HANDLING (AUST.) LTD.**  
20 QUEEN STREET, MELBOURNE; CENTRAL 2465

**S. AUST.: POWER HANDLING (AUST.) LTD.**  
61 GAWLER PLACE, ADELAIDE; CENTRAL 8021  
**W. AUST.: G. G. MARTIN LTD.**  
832 HAY STREET, PERTH; B 9728

**QLD.: WAUGH & JOSEPHSON LTD.** 102 MELBOURNE STREET, SOUTH BRISBANE. J 1466



**FIGURE NO 741**



**JOHN "J" DISC GLOBE VALVE**  
For Saturated STEAM  
150 lbs. per sq. inch  
and WATER, OIL or AIR  
at 250 lbs. per sq. inch

ILLUSTRATED above is one of the large range of JOHN Valves and Fittings for use with STEAM, WATER, OIL, CHEMICAL, AIR and GAS Services of high, medium or low pressures and temperatures.

**JOHN**  
**M.B. JOHN LIMITED**  
BALLARAT • VICTORIA  
AUSTRALIA

TRADE MARK

MAKERS OF THE LARGEST RANGE OF VALVES AND FITTINGS IN AUSTRALIA

FULL PARTICULARS supplied on request

**FOUNDRY FACINGS**  
FOR IRON, STEEL AND BRASS FOUNDERS

FLUMRAGO SILICA PAINT WHITE FACING HARD "TON" IRON	GRAPHITE COAL DUST BLACK DUST CEMENT	BLACKING BENTONITE TERRA FLAKE SHUAPART
---	---	--

Manufactured by **PROUD BROS. PTY. LTD.**  
45 BRACONFIELD ST., ALEXANDRIA, N.W. And at MELBOURNE, VIC.

Phone: MX 5150

**BOLTS & WASHERS**  
**C. STEVENS**  
West Footscray Engineering Works Pty. Ltd.  
52 CROSS STREET, WEST FOOTSCRAY, VIC.

Phone: MW 1580



(Continued from page 78.)

large quantities and in a range that soars to the jewelled and gold-plated type (aptly described as "a high-class jewellery job") down to the pen that is called upon to do constant and hard work. There is even a cheaper style in plastic. But in all its types there is an insistence on first-class production.

Of course, the plant for such an industry must be good over a range of machines and instruments that will give the desired results. And for this the company is efficiently and adequately equipped. The plant at the Richmond factory is fully automatic—that is, it is capable of measurement, temperature and operating control by mechanical processes that ensure uniformity and preciseness.

The company has only recently acquired a spacious building at its present site. Previously portion of the works was in Sydney and part in Melbourne. Now it is possible to centralise operations and the Sydney plant has been moved to Melbourne. The transfer of that plant was a job in itself. Weighing more than 150 tons, it was taken from Sydney by road and installed at Richmond. It was a big job in getting the machinery out of an almost inaccessible lane-way in Sydney on to the big transport trucks. It was necessary to load it piece by piece on to a smaller truck and then, after a trip up the lane, to be man-handled on board the transport. But it was accomplished and the company is now in full production at Richmond.

## Individual Machines for Specific Jobs

### Designer Seeks Repetition Work

After 15 years as a designing engineer Ray Segal of Raytex Engineering, decided to establish his own business about four years ago, and turned from not only designing and manufacture of machines but also to repetition work. First machine made by Raytex Engineering, Bourke Road, Alexandria, N.S.W., was the manufacture of small looms for the textile industry. At that time, 1946, shortage of cloth had stimulated the vogue for hand woven materials and so there was a demand for small looms.

Raytex constructed one with a light metal frame, from which they developed other models. These included a semi-powered job in which energy was supplied by a fly-wheel kept revolving by an occasional kick at a treadle.

Some of these looms were supplied to the large woollen mills, but the demand for them soon ceased as the mills began receiving supplies of conventional raw materials.

The firm next turned to another demand of the moment—machines to make concrete tiles. These boomed for a while because of the intense need for tiles, but soon diminished as it became apparent that the manufacture of tiles was not a suitable "back-yard" project and could only be done profitably and successfully under correct production methods.

To-day the bulk of the output of concrete tiles—for which there is still a huge demand—are made by mass production methods by a limited number of manufacturers. Hence the market for small tile-making machines has ceased.

The first model of another machine has recently been completed and this time it is for an industry which meets a never ending demand—food manufacture; more specifically, for jam and pickle manufacturers.

The machine is a small, power driven one for applying the crown seal type cap on jam jars.

This and the other machines described were made by Raytex in

an effort to find a machine for which there was a continuing market so that line-production methods could be employed, obviating the highly skilled pioneering work that goes into the making of a first machine of its type.

It is the pioneering work that is expensive and, according to Mr. Segal, scarcely as profitable as repetition work. However, being a designer, he is happiest when he is creating an individual machine to do a specific job, and it is that which forms the greater part of his factory's output.

Manufacturers who are unable to import a badly-needed machine, or who feel that some operation in the production line could be done more quickly if only there existed a machine to do it, will find a willing helper at Raytex Engineering.

## TARIFF BOARD INQUIRIES.

### CHANGES IN ROUTINE AND PROCEDURE.

The Tariff Board has recently given consideration to methods by which its work might be facilitated and expedited and has decided to make certain changes in the routine normally followed. The principal object of the proposed new routine is to secure and distribute, before the public inquiry is held, indications of the evidence that will be presented at the public inquiry and of the field that will be covered.

As soon as possible after receipt of a reference from the Minister, the Board will advise parties known to be interested, together with those on the Board's regular mailing list, of the terms of the reference. Parties intending to present evidence will be asked to advise the Board, within fourteen days of the date of the circular, of:—(a) their intention to tender evidence; (b) the nature—in broad





**Torsion**  
SPRINGS OF ALL TYPES & SIZES  
AUTOMATIC PRODUCTION  
**WHITELAW SPRINGS PTY. LTD.**  
562 SPENCER ST., MELBOURNE, PHONE: FJ1135

outline—of such evidence; (c) the exact description of the goods covered by any requests that will be submitted at the inquiry.

On receipt of replies from parties proposing to tender evidence, the Board will circulate through the same channels a statement showing the whole of the requests that will be made at the inquiry. It is hoped to distribute this statement so that interested parties will have it in their possession as long as possible before the date of the actual inquiry.

It has been the experience of the Board that some parties to an inquiry have expended time and effort in the preparation of evidence to defend a position that is not attacked. It should be a great convenience to all parties to know beforehand the nature and extent of requests that will be made. For example, the question of duty on Bolts and Nuts might be under reference to the Board. The procedure proposed might establish that a request will be made for raising or lowering the existing level of duties on the whole range of types and sizes; on the other hand the only request to be made might be for a raising or lowering of the duties on a limited range such as 3/4 in. Hex. rd. hex. bright finished bolts and nuts—SAE thread. In the latter case there would be a limited field of inquiry to the advantage of all concerned in the industry as well as to the reporting staff and to the Board.

It is clear, however, that if the new plan is to work satisfactorily, and to eliminate unnecessary work, it will be necessary for intending witnesses to co-operate fully and to advise the Board in complete detail of the goods that will be the subject of requests. Illustrations or, if necessary, samples that could

be made available for inspection would be helpful at the preliminary stage.

Another minor change in procedure will be the discontinuance of the day to day advertisements while inquiries are proceeding. Notification of the Board's intention to hold an inquiry will be advertised in the normal way, usually at least two or three weeks before the inquiry, but the advertisement which, in the past has appeared on the day of the inquiry, will be discontinued.

#### DYECRAFT ASSOCIATE DIRECTORS.

The Directors of Dycraft Ltd., recently announced that Mr. W. H. Myers, Mr. L. W. Jones and Mr. R. Waterworth have been appointed to the associate board of the company.

These three executives are works manager, works chemist and printing manager respectively of the Sunshine branch of the company, where dyeing, printing and finishing of rayon piecegoods is carried on.

#### BUTYL TITANATE.

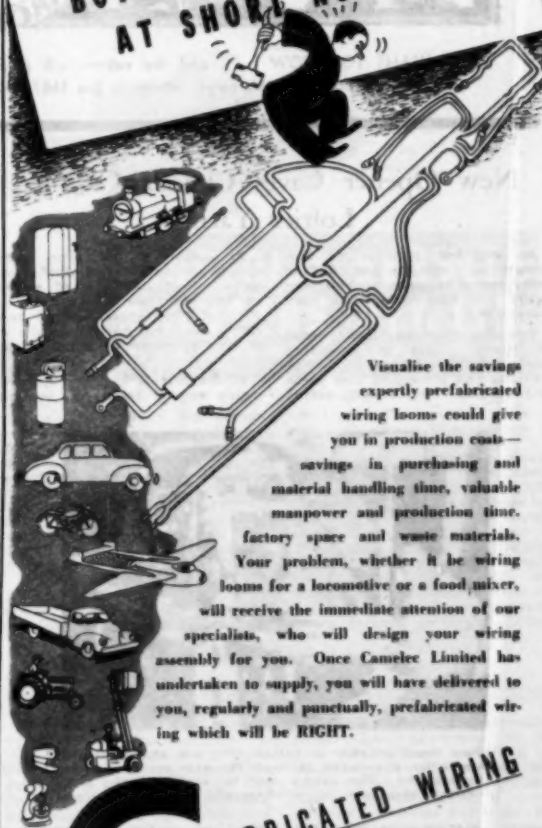
The Defence Research Laboratories have recently made reports of the article, "Butyl Titanate—its Preparation, Polymerization and Use in Paint," by G. Winter. Copies of this report are available to interested persons free on application to Chief Superintendent, Defence Research Laboratories, Private Bag No. 4, Post Office, Ascot Vale, Victoria.

Receipt of many enquiries at D.R.L. on developments in the technology and uses of butyl titanate has prompted the preparation and publication of a review of the present state of development of this interesting material.

Following a brief survey of the initial work by Division of Industrial Chemistry, C.S.I.R.O., in collaboration with D.R.L., a review is made of the developmental work by D.R.L. on formulation and application of butyl titanate paints in which various pigments are incorporated.

Earlier work showed that these coatings afforded excellent protection to steel at high temperatures. Recent work has aimed at improving the protective qualities under humid and marine conditions.

**HAVE YOUR  
ELECTRICAL WIRING  
BOTTLENECKS CRACKED  
AT SHORT NOTICE!**



Visualise the savings expertly prefabricated wiring looms could give you in production costs—savings in purchasing and material handling time, valuable manpower and production time, factory space and waste materials. Your problem, whether it be wiring looms for a locomotive or a food mixer, will receive the immediate attention of our specialists, who will design your wiring assembly for you. Once Camelec Limited has undertaken to supply, you will have delivered to you, regularly and punctually, prefabricated wiring which will be RIGHT.

**PREFABRICATED WIRING**  
**CAMELEC**

ADDRESS YOUR ENQUIRIES TO:

**CAMELEC LIMITED**  
81 MORPHETT ROAD, CAMDEN, SOUTH AUSTRALIA  
PHONE X 2244 TELEGRAMS: 'CAMELEC,' ADELAIDE

MANUFACTURING ELECTRICAL AND GENERAL ENGINEERS  
AND WIRE BRUSH MANUFACTURERS

**GENERAL  
ENGINEERS  
AND  
SHEET METAL  
WORKERS**  
**B.S.F. PTY. LTD.**  
9-11 David Street  
RICHMOND, E.I. Victoria  
Tel.: JA 2084





YOU WANT TO KNOW . . . and the editors will gladly tell you . . . more about the inventions, materials, and processes mentioned on this page. Write to Box 1687, G.P.O., SYDNEY, enclosing a stamped, self-addressed envelope.

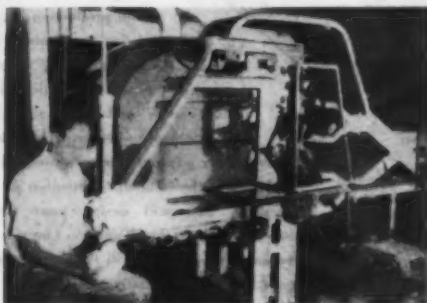
## New Opener Gives Cleaner Cotton, Loftier Yarn

An improved machine of new design for opening and fluffing baled cotton to make it clean more easily and spin better has been developed.

The new machine should prove of special value in preparing mechanically harvested cotton for cleaning and processing into yarns and fabrics. Since this cotton

An opener of this type large enough to loosen and fluff four bales (about 2,000 lb.) of cotton an hour occupies only about 8 x 8 ft. of floor space. Large machines that will open as much as 10 tons of cotton an hour can be built.

In contrast to ordinary openers, which employ blades or beaters,



Two equal weights of cotton fibre are shown before and after processing through the new opener in the background. The opener will be useful in the processing necessary for mechanically harvested cotton.

usually contains more trash than that picked by hand, textile mills have needed a more efficient means of opening and cleaning cotton.

The new machine is said to open baled cotton rapidly to a loose fluffy condition, similar to that of cotton lint right after ginning and before baling. This opened condition permits improved cleaning and blending of the fibre in conventional textile equipment. The machine is also said to have an unusually high production rate for its size, and so helps save space in crowded mill rooms.

The new machine consists of a number of toothed, gin-saw or "licker - in" wire cylinders, arranged one above the other and all rotating in the same direction. The cotton forms a rapidly revolving soft roll as it feeds into the machine on a conveyor belt. Small tufts are pulled out of this roll by the rotating cylinder teeth and are then removed from the teeth by means of a new doffing apparatus with metal blades.

Despite its high-speed operation, the improved opening machine is said not to cause neps, even when processing immature cottons which

tangle easily. Yarns spun from cotton prepared by the new opener can be made loftier without reducing their strength. [2733].

## Measuring Electrostatic Charges

Electrostatic charges are readily acquired by friction arising during manufacture on the surfaces of materials of low electrical conductivity such as paper, belting, and plastics. In order to investigate such conditions, and to assess the effectiveness of measures taken to obviate them, a portable instrument capable of measuring electrostatic charges was developed.

Recent developments in sub-miniature electrometer valves, and other components have enabled a manufacturer to redesign and develop this instrument into a robust and convenient form for general laboratory and workshop use.

The instrument consists of a pistol-like body and grip which contains the batteries, switches, and adjusting rheostats, and the indicating instrument. A detachable cylindrical part corresponding to the pistol barrel contains the hermetically-sealed electrometer valve, the capacitance coupling plate, a gravity-operated setting switch, and a sliding member controlling the sensitivity.

The instrument thus measures voltage gradients and discriminates between fixed positive and negative potentials and alternating potentials. Accessories enable the instrument to be used for the measurement of charge and of the resistance to earth or to an adjacent point of the object being investigated.

The instrument is switched on by pulling and holding the trigger switch; the valve heats up in a few seconds.

The heater and bias voltages are then adjusted in accordance with the operating instruments and the instrument pointed at the object on which the charge is to be measured. The position of the sensitivity sleeve may have to be

set to bring the reading within the scale. This sleeve has three positions giving X1, X10, and X100 times the instrument scale reading.

The voltage on the surface at which the instrument is pointed is



The new instrument for measuring electrostatic charges.

then given by multiplying the scale reading by the sensitivity factor and by the separations in feet between the object and the instrument. [2742].

### SPECIAL NOTICE TO READERS

To receive prompt attention, address all inquiries to Box 1687, G.P.O., Sydney.



# VICKERS DETROIT HYDRAULIC (oil) CONTROLS

*Predominate*

on Modern Earth Moving and Material Handling Equipment, Hydraulic Press Circuits, Special Purpose Machine Controls, and Machine Tool Actuating Circuits.

Relief Valves; Pressure Reducing Valves; Sequence Valves; Counterbalance Valves; Directional Control Valves (lever operated, pilot operated and solenoid operated); Multiple Unit Valves.

We design and quote complete hydraulic circuits for actuating:—  
Presses, Broaching Machines, Machine Tools, Furnaces, Special Purpose Machines.

Distributors in New South Wales: C. F. Archer Pty. Ltd., Stanmore, Sydney, N.S.W.

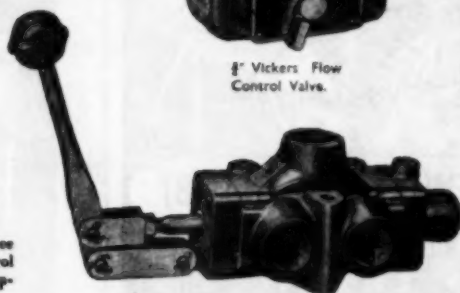
Vickers/Detroit Oil Hydraulic Pumps and Controls are manufactured in Australia by the sole licensees—



3" Vickers Flow Control Valve.



Balanced Piston Relief Valve.



3" Lever Operated 4-way Direction Control Valve.

## INDUSTRIAL SERVICE ENGINEERS PTY. LTD.

ASHLEY STREET, BRAYBROOK, VICTORIA, AUSTRALIA

## Lock Broaching Machine

An interesting example of broaching in the manufacture of locks of the Yale type is provided by a machine recently built. It makes use of two stationary broaches, placed side by side in the frame, which enable two lock barrels mounted in a moving work carrier to be broached simultaneously. The machine has an output of 12 lock barrels a minute and up to nine work carriers can be taken at one pass.

Drive for the machine is taken from a 2 h.p. electric motor through a worm and worm-wheel and pulleys. A sprocket, secured to the horizontal shaft of the wormwheel, drives an endless triplex chain which passes round an idler sprocket at the left-hand end of the machine. Each work carrier is provided with a double row of teeth for engagement with the outer rows of chain links so that the work is drawn over the stationary twin broaches. Provision is made for hand operation of the machine for setting-up.

The broaches are built up from sections, each 2 in. long, which are clamped together endwise to form a continuous length. With this arrangement worn or broken sections may be readily replaced, thus obviating the necessity for the renewal of the entire broach. Chip trays are provided at each side of the machine and the sides of the broach holders are inclined to prevent the accumulation of swarf. The blanks to be cut are located in a block which is inserted in the work carrier, a series of interchangeable blocks being used to take lock barrels of various sizes.

The work-carriers are loaded on to the upper slide way at the left-hand end of the machine and are transferred to a selector mechanism by a hand lever. This selector mechanism prevents overloading of the machine by the operation of a plunger which is normally depressed by the leading edge of the work-carrier as the latter passes through to engage the

triplex chain. When the machine is working to full capacity the plunger is locked in the "up" position, thus preventing the admission of further work-pieces until the leading work-carrier in the machine has completed its travel. A fool-proof plunger is also fitted to ensure that the work-carriers are correctly loaded.

At the end of the broaching operation the work-carrier is drawn on to a carriage which transfers it to an inclined roller

conveyor. The conveyor then returns the carrier to a platform below the loading position. Two foot-operated ejectors are embodied in the platform for removing the broached work-pieces from the fixture, the parts falling into a tray. A stop latch is provided which can be lowered to hold the work carrier firmly, thus facilitating the removal of work-pieces which tend to stick. The work-carrier is taken from the platform by hand and reloaded for a further operation. [2734].

## New Light-Weight Conveyor Belt Lacer

An essential feature of a conveyor belt is a reliable joint. It must be of maximum strength and yet allow the necessary flexibility. Previous lacing machines for this purpose, although usually providing an adequate joint, have been very cumbersome to carry. An added disadvantage has been that any eventual dismantling of the conveyor unit was extremely difficult.

A new belt lacer eliminates these drawbacks owing to the fact that, although capable of tremendous pressure, it is very light and, therefore, easily portable. The joint is achieved by means of "units" of hooks and loops. Dismantling and reassembly can be carried out with extreme rapidity, since all that is needed is the insertion or withdrawal of the hinge-pin. [2729].

# ADVANX

## WILL SOLVE YOUR PROBLEMS IN RUBBER

ADVANX RUBBER & TYRE CO. PTY. LTD., NEILD AVENUE, RUSHCUTTERS BAY, SYDNEY, AUSTRALIA, 'PHONE FA 8101.





## "FINEX"

### Sieving and Straining Machine

Developed and perfected by Russell Constructions Ltd., of London, in response to a Government demand for a method of sieving dangerous or explosive compounds, the "FINEX" series of sieving and straining machinery represent an unique adaptation of the principle of gyratory turbulence.

In designing the "FINEX" units it was laid down that the mechanism employed should be easy to clean, have few, if any, exposed moving parts, cause the minimum of concussion among the particles being processed, whilst the material being sieved should not clog the mesh and, above all, no dust should escape into the atmosphere. The machine was to be as silent running as possible.

The "FINEX" sieving machine achieves all these aims and occupies an area approximately 2ft. in diameter and 3ft. high. It is equally well adapted for dry powders and liquids or viscous materials—sugar, face powders, precipitated chalk, paints and animal fats being but a few of the various items which these intriguing new units can handle.

*As sole agents for Russell Constructions Ltd. and "FINEX" machinery, our services are always at your disposal for more detailed information.*

**SWIFT**  
AND COMPANY LIMITED

26-30 CLARENCE ST., SYDNEY. BX1831

And at Melbourne, Brisbane, Adelaide and Perth. Also Wellington and Auckland, New Zealand.

## Protection Electrometer Checks Level of Radiation

The use of high-penetration X-rays and gamma-rays in engineering inspection necessitates adequate protection for operators.



Radiation Protection Electrometer and Pocket Ionization Chambers.

Where perfect screening is not possible, it is necessary to know whether the amount of radiation to which the operator is subjected

is below the danger level. In the past various methods have been employed for integrating this amount of radiation. A simple and effective solution of this problem is provided by a protection electrometer in conjunction with pocket ionization chambers.

Referring to the illustration, the pocket ionization chamber A consists of an electrically-conducting outer case with a central highly-insulated electrode surrounded by air space. The electrode is periodically charged to 140 volts, and holds the charge for a long period. If the chamber is subjected to X-rays, gamma-rays, or hard beta-rays, the air is ionized and part of the electrode charge leaks away. This loss is proportional, when the chamber is carried in the pocket, to the amount of radiation received by the operator.

At the end of the working day the remaining charge is measured by the electrometer B, the dose being indicated in milliroentgens. It is recommended that 100 m.r. per day on a 5-day week basis should be regarded as the maximum safe dosage.

The electrometer, which is portable, weighs 9 lb. and is operated from batteries. The electrometer valve is contained in a hermetically sealed chamber. [2708]

## New Laboratory Centrifuge

An overseas company, for nearly four decades world-renowned producers of scientific and laboratory centrifuges, have developed an instrument to meet the need for a centrifuge capable of being adapted easily and quickly to take different capacity and various number of tubes.

It is an angle-type centrifuge arranged for direct electric motor drive and ideally suited to research laboratories in industry. The unit is fitted with an automatic speed regulating switch provided for revolutions up to 15,000 per minute. Flexibility and convertibility of the model are imparted by two interchangeable rotors to carry any combination of pairs of buckets for preparative work inclined at an angle of

36.5°. Stabilizing themselves dynamically, the rotors are made of hand forged aluminium alloy and withstand stresses at all speeds without spreading.

Due to the self-active adjustment of the wheel-work and excellent vibration absorption of all its parts, the machine can be operated with greatest ease and, according to individual preference and space available, mounted on any table.

The capacity of rotor I amounts to 300 cc net. One to three pairs of buckets of 50 cc net each can be placed diametrically opposite each other. The buckets are sealed by caps. Rotor II has a capacity of maximum 250 cc net and is provided for 20 cap-sealed buckets to hold 12.5 cc net each. [2735].

## Economical Grain-drying Plant

With the increased use of the combined harvester a great need has arisen for a simple and economical grain-drying plant. Unfortunately, most equipment for this purpose is much too expensive for the small farmer. A new plant, simply constructed, easily installed and controlled and relatively inexpensive, however, is now being produced by a British

firm. Instead of complicated heating arrangements, the equipment merely uses an oil burner with a combustion chamber. Above this is a sack platform consisting of a concrete slab containing apertures and gratings through which warm air is driven, thus dispensing with the need for pipeline installations.

With a drier load of 40-112 pounds sacks, the machine will



# CARA

**PRESSED STEEL  
WINGNUTS**  
Reg. design No. 24283



**Are Lighter and Stronger**  
Threads cut in cold drawn steel of high hardness, with superior resistance to wear and tear.

**MANUFACTURER**  
**C. B. RAETZ**  
"CARA" STEEL PRODUCTS  
107 Illawarra Road, Marrickville,  
N.S.W. Tel.: LM 9079.

Obtainable from Leading  
Engineering and Hardware  
Supply Houses.

dry from 19 per cent. to 14 per cent. moisture in about five hours and will therefore handle about eight tons of grain in 20 working hours per day. Working temperature averages 25 deg. Fahrenheit above atmospheric temperature. This moderate temperature ensures that grain or other seed cannot be damaged from overheating. [2736].

## Mobile Milk Recording Apparatus

Record-releaser machines for milking are normally immobile and their use necessitates moving cows to a milking parlour. Besides creating many difficulties—especially in the winter—this entails the building of a specially equipped shed. On the other hand, if the ordinary portable milking units are used, large volumes of milk have to be carried from cowshed to cooler; often involving full-time work for one man.

A new apparatus manufactured by a British firm overcomes the drawbacks inasmuch as the milk receiving jar and weighing apparatus are now carried on an overhead rail, which allows their transport along the cowshed. The cows can thus be milked and the yields recorded without their being disturbed, while the milk is immediately transferred direct to the cooler by an overhead pipeline.

Very little maintenance is required and it is quickly and easily dismantled for thorough cleaning. The runway girder is made up of four inches by three inches aluminium alloy joist and can also be utilised for the installation of manure and food carriers. [2728].

# "Wilcolator"

Provides

## AUTOMATIC PROTECTION FOR HOT WATER SERVICES!

THE MODERN WAY TO  
SIMPLIFY HOT WATER  
SERVICE INSTALLATION

The Wilcolator 780-C/jin. water pressure reducing valve banishes old-fashioned overhead cold water feed tank.



Wilcolator 780-C/jin. Water Pressure Reducing Valve.

- Specially designed to control varying main pressure to the steady reduced pressure required for domestic hot water services.
- Easily installed in existing homes—saves costly ceiling installation of cold water feed tank, with attendant structural alterations.
- Approved by water supply authorities in Brisbane, Sydney, Melbourne and Hobart.

### OTHER PRODUCTS MANUFACTURED BY WILCOLATOR:

Wilcolator Hot Water Service Thermostats  
Wilcolator Electric Refrigerator Thermostats  
Wilcolator Electric Range Thermostats  
Wilcolator Industrial Instruments (for measurement and control)  
"ACE" Steam Control Equipment

## WILCOLATOR MANUFACTURING PTY. LTD.

511-515 KEILOR ROAD, EAST KEILOR, MELB., VIC.

Telephones: FU 4449, FX 8491-2-3.

### Wilcolator Sales and Service —

BRISBANE: C. F. Willers, Ryan House, 36 Eagle Street; Instrument Engineering Co., 31 Annarley Road, South Brisbane. SYDNEY: A. E. Acland Pty. Ltd., 189 Clarence Street; Instrument Service Co., 3 Burton Street, Glebe. MELBOURNE: A. E. Acland Pty. Ltd., 406 Post Office Place; Wilcolator Manufacturing Pty. Ltd. ADELAIDE: C. N. Muller, Woranda Buildings, Grenfell Street; Unbehauen & Johnstone Ltd., 22 Gawler Place. PERTH: Atkins West Aust. Ltd., 994 Hay Street.

## Wax Injection Machine for Pattern-Making

There has recently been developed the wax injection machine here illustrated, for making the patterns used in the lost wax casting process, and several of these machines have already been installed in the works of leading overseas companies making precision castings.

The wax is contained in a tank of 81 gal. capacity located in the head of the machine, and is ejected through the nozzle pneu-

matically, the shop air line pressure required for this purpose being 80 lb. per sq. in., giving injection pressures from 15 to 1,280 lb. per sq. in. The wax tank is surrounded by an oil jacket which is heated by means of an electric heater with supplementary, three-stage nozzle heater, the latter being controlled by a switch on the front of the machine. The total consumption is 1,500 watts. The temperature of the wax is

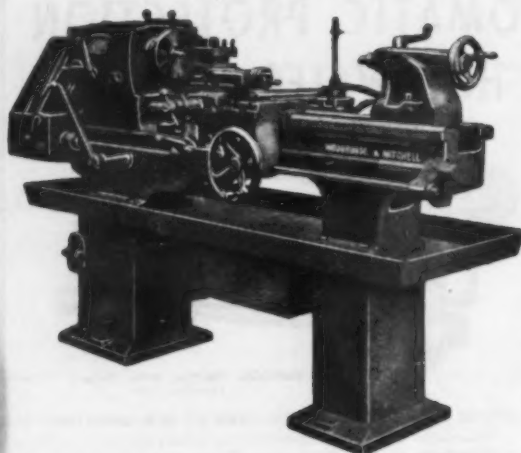
automatically controlled by a thermostat which can be set to give any temperature between 40 and 120 deg. C. A temperature gauge and an indicator light are provided on the control panel, the light being automatically extinguished when the wax reaches the pre-set temperature. The thermostat, and the filler caps for the wax tank and the oil jacket, are enclosed by two hinged doors on the top of the machine head.

The 17-in. diameter work table is movable vertically, to bring the mould up to the nozzle, the maximum and minimum distances between the table and the wax in-



**WM**  
**70 JUNIOR**

**7" S.S. & Sc.  
LATHES**



- Diagonally braced box section bed for rigidity and strength
- Heat-treated nickel steel gears on multi-splined shafts.
- Toughened main spindle, tubular forged, high carbon steel
- Single lever selection of sliding and surfacing feeds
- Inverted vee and flat guides for saddle and tailstock
- Tension mounted lead screw with ball thrust bearings
- Oil-immersed multi-plate clutch
- Built throughout to Schiesinger limits

The illustration above shows the clean lines and accessibility of all controls. From gear box to tail stock the WM70 JUNIOR is essentially a practical job, designed and built to provide accuracy, reliability and simplicity of operation. Standard bed length gives 36in. between centres, but a longer bed giving 45in. is available if desired. Head stock provides 9 spindle speeds ranging from 30 to 437 r.p.m. Gear box giving 3 feed speeds is standard, but Norton type quick change box is alternatively available.



Now on display in our showrooms.

Available for immediate delivery

**Cleveland Machinery Co. Pty. Ltd.**

193-195 CLEVELAND STREET, REDFERN, N.S.W.

Telephone: MX 3594

Telegrams: "CLEVCO," Redfern

## TENSALLOY PRECISION CASTINGS

For prompt delivery, Tensalloy Alloy Castings. Light and strong; with or without inserts; little machining necessary; high tensile strength, and low die cost.  
Motor Housings — Bearings of all descriptions — Pulleys — Machine Tool Components, etc. Capacity available. Inquiries invited.

**TENSALLOY PRECISION CASTINGS**

11 Albert Street, Brunswick, N.10, Vic.

Telephone: FW 2111

jection nozzle being 14½ and 3 in. The upward and downward movements of the table are effected hydraulically and are controlled by means of two pedals located in

On a machine installed recently, three operators with only two days' experience produced 1,200 dozen pairs of 15-den. stockings in 8 hours (400 dozen per operator) with considerably less effort than required to do normal boarding.

Preboarding, dyeing, and extracting are carried out as normally handled by many firms especially concerned with high-quality work. Then, instead of being boarded individually, the stockings are delivered while in the hosiery nets to the feed end of the new dryer. The machine has a travelling conveyor belt which passes through a drying cabinet with accurately controlled temperature and air currents.

Three operators run each machine. The first operator removes and opens the folded goods from the dye net. The second operator places and lays out the bundle of 12 stockings full length on the belt of the conveyor dryer. The third operator removes the bundles at the delivery end, folds them



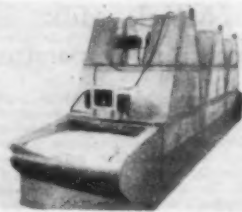
This wax injection machine makes patterns for the lost wax casting process.

the machine base. A pressure of 250 lb. per sq. in. is required to operate the table, and connections are provided to enable the hydraulic circuit to be coupled to the customer's supply line. If required, the necessary hydraulic pump unit can be supplied with the machine. A pressure reducing valve, oil flow valve, and pressure gauge are included in the hydraulic equipment. A Perspex guard is provided round the injection nozzle as a protection against splash.

The machine occupies a floor space of 1 ft. 9 in. by 2 ft. 4 in. [2741].

## Hosiery Dryer Eliminates Final Boarding

A basically new machine for the final finishing of all-nylon ladies' hosiery has been developed. Production per operator is said to be four to five times usual rates, and the percentage of firsts is said to be increased because the system requires no forms whatever. A dull appearance is also imparted to the hosiery.



Stockings are dried in laid-out bundles as they pass through this dryer on a conveyor belt.

once, and places them on carrier boards ready for transfer to the pairing and inspecting departments.

The original model of this new machine was installed about one year ago. It has been operating continuously and turning out high-quality work ever since. [2752].

**DO YOU USE OUR  
INQUIRY DEPARTMENT**

**SEE PAGE 40**





## The Sharples UNIVERSAL VAPORSEAL CLARIFIER

The new Sharples Vaporseal Clarifier is specifically designed for the PAINT AND VARNISH INDUSTRY, providing simple, efficient and economical centrifugal clarification of varnish, enamel, lacquer, etc. Features: Easily adjusted for complete clarification of clear products or for selective clarification of pigmented goods—pigment agglomerates, grit and oversize particles can be readily removed at high throughput rates. Absolute uniformity of high quality production. Easy to handle, the simple tubular bowl is self-draining and readily cleaned . . . solvent loss is minimised by totally enclosed construction.

A variety of models, Stationary and Portable, is available to meet specific needs. All units are equipped with explosion-proof electrical equipment.

Why not investigate this new centrifugal Clarifier to-day?

*The Sharples Division*

**Gilbert Lodge & Company Limited**

Representing THE SHARPLES CORPORATION  
FACTORIES IN ENGLAND AND AMERICA

*Centrifugal and  Process Engineers*

★ Portable Sharples Universal Vaporseal Clarifier

ADELAIDE • BRISBANE • MELBOURNE • PERTH • SYDNEY



*A Borneo jungle scene. Loggers rolling a log to loading platform.*

# TIMBER PLYWOOD WALLBOARD

*Importers  
and  
Distributors*

## HARRISONS RAMSAY PTY. LTD.

4 Bank Place, Melbourne. MU 6431.  
150 Mary Street, Brisbane. FA 1756.

52-54 Clarence Street, Sydney. BX 3311.  
92 Pirie Street, Adelaide. W 2991.

331 Murray Street, Perth. BA 4958.



## Making Heavy Marine Diesels

### Arc Welding Makes Australian Production Possible

The accompanying view on this page of a Doxford Diesel serves to illustrate the extent to which heavy marine Diesel production has proceeded in Australia.

At the present six such Diesels of 2,800 B.H.P. each, by far the largest to be built in Australia—are under construction to the Commonwealth Department of Supply and Development for use in Australian-built cargo vessels. They are being manufactured under licence to William Doxford & Sons, Sunderland, Great Britain, by the Commonwealth Government Marine Engine Works, Port Melbourne, Victoria.

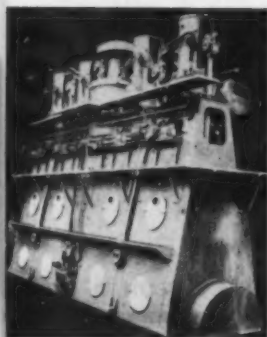
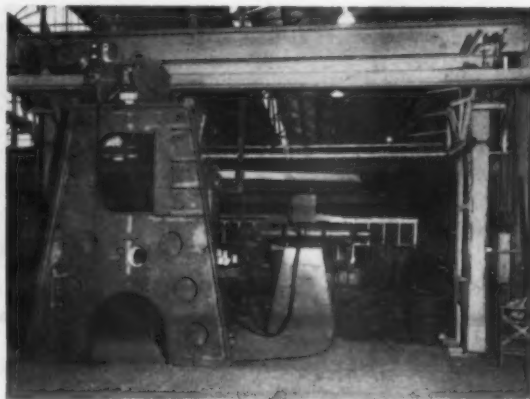


Fig. 1. A 5,400 H.P. Doxford Diesel engine, of the type now being built by the Commonwealth Government Marine Engine Works, at Victoria. The Doxford is the largest Diesel ever built in this country, and incorporates a fabricated frame.



Fig. 2. This photo was taken at the Maribyrnong Ordnance Factory, where the fabricated columns were built. It shows the use of the Manual Lincolnweld equipment, which was used on short run work, etc.



**D**UE basically to a design which makes large use of welded steel construction, particularly in the frame assembly, the Doxford Diesel has a very high power weight ratio in comparison with other Diesels of this type and rating.

It is primarily for this reason, also, that the Doxford is a practical manufacturing proposition in Australia. Hitherto Diesel engine manufacture in Australia has been limited to an engine of around 540 H.P. largely because foundry capacity in this country has not been capable of producing the tremendously heavy and large component castings associated with Diesels of very high H.P. ratings.

Such production limitations do not apply to the Doxford, which has a fabricated frame built up of three main sections—a bed-plate incorporating crankcase sump and crankshaft bearings, six vertical columns and the horizontal members which bridge the columns.

The vertical columns for these engines, which are "A" shaped

sections approximately 12 feet high and 8 feet across at the base, are now completed. They were fabricated at the Maribyrnong Ordnance Factory, Victoria, where the equipment, plant layout and shop facilities are ideally suited to the production of heavy weldments. They are excellent examples of fabrication by mechanised welding as opposed to conventional hand welding, as over 90 per cent. of the welds were made using Lincolnweld automatic and semi-automatic processes.

Each "A" section, of which there are six in a Doxford frame, was built up from two flat "H" sections comprising a web, flame-cut from 9/16 in. mild steel plate, with side flanges 2 in. thick and from 4 in. to 8 in. wide, and bottom and top flanges equal in width to the side members and 11 in. and 11 in. in thickness respectively. The two "H" sections were then butted together edge to edge to form a very rigid box member with overlapping flanges.

The manufacturing operations started with the production of the web from two plates welded



Figs. 3 & 4. (Left and above). The greater part of the welding was done using the automatic hidden arc process, by means of which welding speeds were increased an estimated five times over hand welding methods.

longitudinally together. The web was flame cut to shape. Then the top and bottom and side flanges were welded in their respective positions. Before welding the flanges pre-dished 2 deg. or 3 deg. to counterbalance slight contractional distortion. Finally two

(Turn to page 55.)



Fig. 5. The extremely deep penetration which is attained with the Lincolnweld process, is illustrated by this Macro-etched specimen from a column. The effective throat thickness of this joint is about 70% greater than the nominal thickness.



# Developments in Mechanical Handling Equipment

(By Z. Ernyei, A.M.I.E. (Aust.).)

The continually changing market is an unceasing incentive for new developments in industry. New articles have to be designed, and existing products have to be improved in quality and reduced in price. Hereunder, a few examples in point from the manufacturing programme of the Anchor Engineering Co. Pty. Ltd. in Richmond (Vic.), makers of mechanical handling equipment.

ALL "Anchor" chain blocks manufactured during the war were made with a 1 ton unit. The latter, fitted with 2 falls, gave a 2 ton block, with 3-4-5 and 10 falls served as a block with 3, 4, 5 and 10 ton capacity. The 1 ton block was also made with the

an ever increasing demand for blocks suitable for the handling of heavy goods.

Consequently, a 2 ton unit was developed, which is most suitable for the purpose.

An unusual feature of this unit is the gear box. Fig. 1 shows the

commercial sizes of blocks, from 2 ton upward, are being made with the new unit. The top and bottom fixings are fabricated from mild steel. All components of the fixings are combined in a rigid frame and connected in such a way that they support each

120 lbs. for heavy blocks, in order to save on gear ratio. Two men would be needed to pull one hand chain, but this arrangement is inconvenient, because the two men impede one another.

The "Anchor" Duplex block is made so that two men can oper-



Fig. 1. Gear train; 2 ton unit.

same unit, but with somewhat narrower gears, smaller handwheel and lighter chain. The above system was partly a matter of expediency, imposed by the necessity of supplying the greatest number of blocks possible for the use of the fighting forces.

## CHAIN BLOCKS FOR HEAVY GOODS.

As soon as the war-time pressure ceased, a proper 1 ton block was designed, and after extensive experimenting, the new block was put on the market. But there was

Fig. 2. Three sizes of Anchor Milled Sprockets.

gear train of 3 sets of cluster gear. This arrangement is ideal from the point of view of the equilibrated pinion shaft and reduction of tooth pressure. The high speed gear set is hardened. The Load Gipsy of the 2 ton unit has machine cut pockets, like all other "Anchor" blocks (Patented). Fig. 2 shows the 3 sizes of mild steel chain Gipsies in use in the 1, 1 and 2 ton units. At present the 1 ton Gipsy is turned in one piece. The 1 and 2 ton Gipsies are fabricated. Trials are now being conducted with the purpose of finding a suitable method to machine the 1 ton Gipsy out of a solid bar, economically. There is a good cause for hope that the trials will be successful.

Soon all "Anchor" blocks will be made with ball bearing sprocket shafts. This new feature will improve efficiency and reduce the maintenance, as these bearings will be packed in grease.

Figs. 3, 4 and 5 show the 4 ton, 10 ton "Simplex" and 15 ton Duplex blocks fitted with 2, 5 and 8 falls of chain. Of course, all

other. The welding is used only to keep the components together. There is no stress in the welding fillet under any load. This arrangement guarantees absolute safety. Besides, every block is tested with static and running load before leaving the factory. The hooks are forged to British Standard Specification B.S.482. Lately, however, there is a tendency to have this shape altered in order to avoid the sharp corners in the cross section. The Load Chain Idler is also pocketed and made either in cast iron or steel. The latter type has bronze bushes. The lubrication is effected through a grease channel, drilled in the shaft.

It is interesting to point out, that the maximum pull on the hand chain is 70 lbs. for "Anchor" blocks of any capacity. Different overseas makes have increased the pull on the hand chain up to

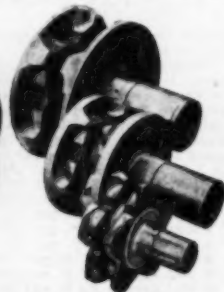


Fig. 3. 4 ton Anchor Block.



Fig. 4. 10 ton Anchor Simplex Block.

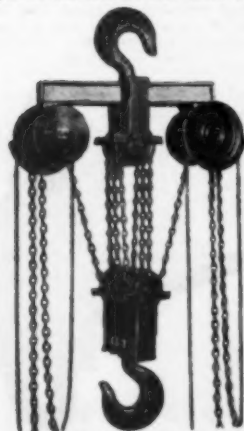


Fig. 5. 15 ton Anchor Duplex Block.

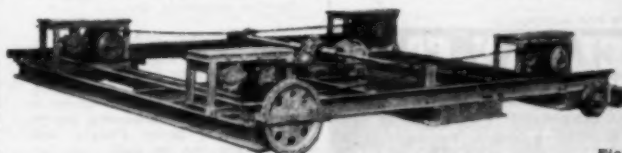


Fig. 6. 10 ton electric gantry with 4 load hooks.



Fig. 7. 1 ton Block Suspended on Anchor Girder Clamp.

ate the one block, each of them work on a separate hand chain, with the result that the lifting speed is doubled, i.e. the time required for lifting is halved. "Anchor" blocks with a capacity of more than 10 tons are made as Duplex blocks. Of course,



No 'time-wasting' peering—



When you install  
**ROTOTHERM**  
*Bi-Metallic* DIAL THERMOMETERS  
you take a **LONG RANGE**  
view of efficiency  
(in a double sense)



Rototherms give you—

**LONG DISTANCE READING**—because their dials are clearly and boldly calibrated.

**CONSISTENT ACCURACY**—because the ingenious bi-metal construction has been proved scientifically correct over many years of constant use.

**LONG LIFE**—because their sturdy construction makes them vibration- and shock-proof.

**ECONOMY**—because these combined advantages, coupled with moderate prices, make Rototherms the best value money can buy.

**TEMPERATURE READINGS for YOUR** particular requirements—because there are Rototherm types and calibrations for **EVERY** industrial requirement.

**EASY INSTALLATION.** They are available in vertical or horizontal types. Dials are 2½ in. or 4 in. dia., or up to 7 in. dia. to meet special requirements. Length of stems up to 48 in., or shorter if desired.

Our Representative will be glad to call and advise you regarding unusual applications.  
Illustrated Literature Available.

SOLE AGENTS FOR AUSTRALIA:

**Wm. J. McLELLAN & CO. PTY. LTD.**  
BRADBURY HOUSE, 55 YORK ST., SYDNEY • PHONE BX 2508  
INDEPENDENT DISTRIBUTORS:  
GIBSON, BATTLE (MELBOURNE) PTY. LTD. AUSTRALASIAN ENGINEERING EQUIPMENT CO. PTY. LTD.  
44 William Street, Melbourne, C.T. 478 Ladbroke Street, Melbourne, C.T.  
J. R. HINCHLEY, UNDERHILL & DAY LTD. PASCOE & CO. LTD.  
42 Eagle Street, Brisbane. Queen Street, Brisbane. 282 Port Road, Woodville, S.A.

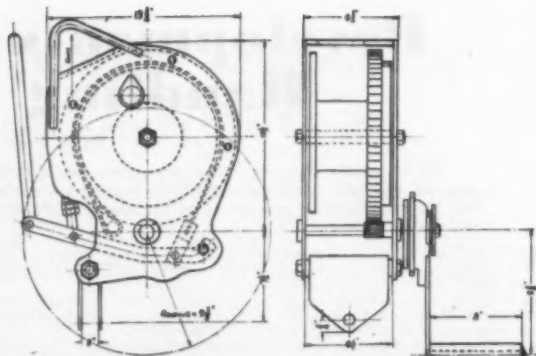


Fig. 8. Swinging stage winch, 800 lbs. capacity.

Duplex blocks can also be operated by one man.

When planning certain types of work, it is sometimes important to know how much time is required to lift a load. It is impossible to give definite figures. Hereunder the approximate lifting speed in ft. per minute for blocks of 1-30 ton capacity are given:—  
1 ton: approx. 8 ft. per min.  
2 ton: approx. 3 ft. per min.  
3 ton: approx. 2 ft. per min.  
4 ton: approx. 1 ft. per min.  
5 ton: approx. 0.7 ft. per min.  
8 ton: approx. 0.5 ft. per min.  
10 ton: Dupl. 0.8 ft. per min.  
15 ton: Dupl. 0.5 ft. per min.  
20 ton: Dupl. 0.4 ft. per min.  
25 ton: Dupl. 0.29 ft. per min.  
30 ton: Dupl. 0.26 ft. per min.

In the above chart Duplex blocks are considered as being operated by two men.

**ELECTRICALLY DRIVEN CHAIN BLOCKS.**

For limited lifting speeds, chain blocks can be fitted with electric drive. Fig. 6 shows a very special arrangement: On a frame, equipped with travelling wheels, are four 3 ton chain blocks, driven by one countershaft, by means of roller chain transmissions. An electric motor of 3 H.P. drives the shaft through a worm gear box. With this arrangement the 4 blocks are working with identical speeds and are lifting and lowering an electric furnace of approximately 16 ft. length, 7 ft. width and 10 ton weight, suspended in 4 points. The crane is made to travel by pulling the hand chain. Several similar electric cranes have been supplied, for different uses, by Anchor Engineering Co. Pty. Ltd. Wire rope cranes would have been far more complicated and costly, for the described use.

**GIRDER CLAMPS.**

Chain blocks should be suspended on girders by means of the adjustable "Anchor" girder clamp (Fig. 7). Any size of clamp is suitable for an adequate range of width of girder flanges, and the clamp can be fixed and unlocked in a few minutes. It is in-

teresting to note that many firms and Government Departments give the greatest attention to the safety of the chain blocks they are buying and using; but they leave complete freedom to the operator, where and how to suspend the block. And so, the operator, in many cases completely incompetent, takes any piece of rope or chain, winds it around a girder or beam, and ties some sort of improvised knot, often exposing himself, and the goods to be lifted, to serious danger. It would be more than justified to insist on the use of this type of clamp, which saves time and avoids unnecessary risks.

**SWINGING STAGE WINCH.**

All States of Australia, in their respective Scaffolding Acts, have introduced very strict regulations, in order to prevent accidents. The Anchor Engineering Co. has, as far as the writer knows, been the first in Australia to design an approved type of winch, for suspended scaffolding, generally termed as "Swinging Stage." The winch is shown on Fig. 8. It consists of a drum, capable of taking 150 ft. of ½ in. steel wire rope, fitted with a band brake, and a set of spur gears. The pinion shaft has an automatic Weston

(Turn to page 36.)

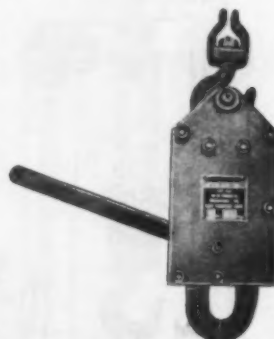
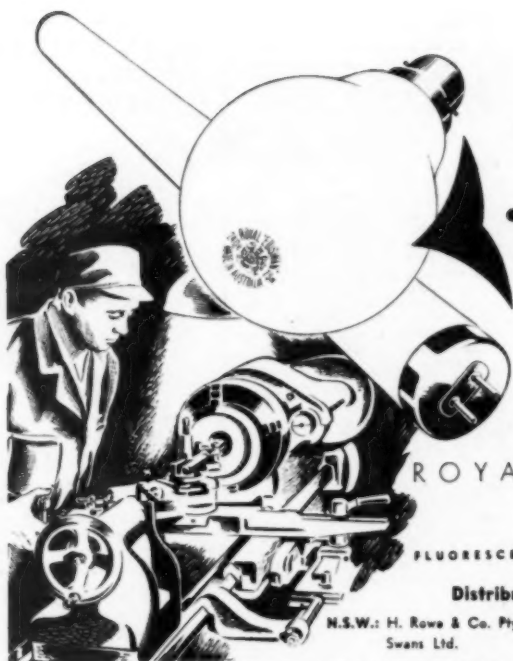


Fig. 9. Releasing Clamp, ½ ton Capacity.





good lamps  
... are the **heart** of  
good lighting...

Royal "Ediswan" Lamps have established a reputation over many years for consistently good service. When buying lamps for your installation, always specify Royal "Ediswan." "Good Lamps are the heart of good lighting" and good lamps mean Royal "EDISWAN."

# ROYAL "Ediswan" LAMPS

FLUORESCENT AND INCANDESCENT

Distributors for The Edison Swan Electric Co. Ltd., England.

N.S.W.: H. Rowe & Co. Pty. Ltd.,  
Swans Ltd.

QLD.: Engineering Supply Co. of  
Australia Ltd. (E.S.C.A.),  
H. Rowe & Co. Pty. Ltd.

S.A.: Oliver J. Nilsen & Co. Ltd.,  
H. Rowe & Co. Pty. Ltd.

VIC.: H. Rowe & Co. Pty. Ltd.

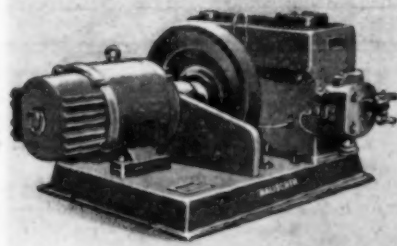
W.A.: Carlyle & Co. Limited.

TAS.: Charles Davis Ltd.

## HERE'S YOUR SOURCE OF INDEPENDENT POWER

There is no need for you to be at the disposal of strikes and blackouts. Before winter and REALLY acute CUTS IN POWER start, instal an Independent Power Plant. The "BAUSCHER" 4- and 6-cylinder 4-stroke cold starting diesel Generating Sets are excellent, embodying the latest developments in design and the very best of material at the lowest possible cost.

Mounted on Single Bedplate, which, with carefully calculated counter-balancing, ensures perfectly smooth operation. Interchangeable cylinder liners, Bosch fuel injection. Flow cooling vertical speed governor. Fully equipped with fuel tank, pipes, filter, air cleaner and silencer, tools and accessories.



### INSTAL AN INDUSTRIAL POWER PLANT

Regular shipments are coming in each month and all enquiries will be promptly dealt with.

There will be no breakdown in your power source with a "BAUSCHER."

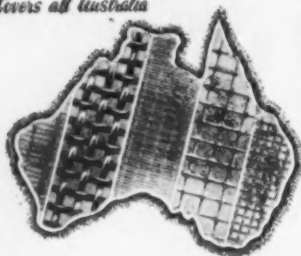
## PARCO (A'sia) COMPANY

247 GEORGE STREET, SYDNEY.

Tels.: BU 2490, BU 4323.



*"Covers all Australia"*



## WOVEN Wire Gauge

of every description  
manufactured in steel,  
galvanised, brass,  
copper, monel, tinned,  
bronze, stainless steel,  
silver.

For Mining Screens, Quarries, Harvesters, Grading Metal,  
Barley, Malt, Flour, Petrol.

## WIRE WORK OF EVERY DESCRIPTION

Such as Baskets for Annealing, Heat Treatment, Plating  
and all types used in manufacturing Oven Racks, Griller  
Grids, Ice Chest and Refrigerator Trays — Hoalery Machine  
Belts, "Melwires" Ties.

## TUBE AND PIPE WORK

Guards for Windows and Machinery, Chain Link Netting  
for Tennis Courts, Fencing, Partitions and Industrial Hand  
Trolleys. Conveyor Belts in all metals for all manufacturing  
purposes.

## MELBOURNE WIRE WORKS

85-99 CREMORNE STREET RICHMOND VICTORIA

EST. 1852

Phone: JB 3041 (5 lines)

Telegrams and Cables: "Melwirworks"

## MECHANICAL SORTING EQUIPMENT

Wholly Made in Australia in Sizes to Suit Either the Smallest  
or the Largest Office.

**FAST, ACCURATE AND SAFE!**

Is Simple, Inexpensive, Eliminates Drudgery and  
Releases Time for Important Work

Fastest office system ever devised for arranging documents, letters,  
records, etc., in any desired order. More than 2,700 Systems operating  
in Australia with complete success.

*The* **Sorter-Graf Co.**  
G. BLAKE

Manufacturers and Suppliers of Sorter-Graf Systems  
and Equipment. Demonstrations Free.

WARWICK BUILDING, 15 HAMILTON STREET, SYDNEY

AGENTS IN ALL STATES.

Tel.: BW 7332.

(Continued from page 34.)

Type Load Brake and a handle. When lifting and lowering the lever of the band brake is pulled against the grip on top. This double brake system guarantees utmost safety. The winch has a suspension link for the standard type of "Swinging Stage." All bearings are protected and fitted with grease nipples. The capacity of the winch is 800 lbs.

Many types of lifting gears are in use for the above purpose; often simple sheave locks, without any brake or safety device. In other cases winches are used, which are far below the requirements of the various Scaffolding Acts. This practice endangers the life of both the operators and the public, and, in the long run, damages the builder.

### RELEASING CLAMP.

To break up big castings, steel balls of 1-1/2 ton weight are used to lift to 20-30 ft. high, and dropped. The electric crane or hoist has to be supplied with a releasing clamp. This clamp holds the ball safely and releases it when the string attached to the protruding lever is pulled. The "Anchor" releasing clamp (Fig. 9) has 1/2 ton capacity. The leverage of the clamping jaws is designed in such a manner that the greater the weight attached, the stronger the grip. The clamp is well protected against dirt, and it is light and very simple. A helical spring counterbalances the weight of the lever.

Iron foundries are the main users of this clamp, which they use to break up scrap iron to suitable sizes for the charging of furnaces.

The development of new lines is tedious, costly, and in many cases, involves financial risks. In spite of these difficulties, it is the duty of every manufacturing organisation to face their obligations towards the community, for progress, safer and better working conditions, and improvement of the standards of living.

## After Business Hours

(Continued from page 2.)

sisters have no say in tribal government. The theory that the women live on the scraps thrown to them by their contemptuous lords and masters is apparently quite erroneous . . . they are not even expected to be content with smaller portions, as lady-like whites are! Although marriages are usually arranged by parents according to a definite set of rules which give little latitude for individual choice, divorce is at least as easy as in white communities . . . even if sometimes accompanied by a certain amount of rough play . . . and there are no widows or spinsters. Another interesting rule, which Elkin says is common to all tribes, is that no man is ever permitted to speak to his mother-in-law, and vice-versa. Whether or not these features of (Turn to page 38.)

## ELEVATORS and CONVEYORS



GRAIN ELEVATOR BOOY  
Capacity: 300 tons per hour

ROBERT BODINGTON Pty. Ltd.

Engineers

Queensberry and Leicester Streets,  
Carlton, Melbourne, Victoria.  
Established 1886

## SCIENTIFIC INSTRUMENT MAKERS

Fine gear cutting a speciality.  
(Spur, helical, bevel, racks, worms  
and wheels). Reduction Gear-  
boxes, Speedometer and Carbu-  
rettor Parts, Small Motor Fittings.  
Fine Mechanical Work. Patents  
Developed.

**C. ALGER & SON**

25-29 MARKET LANE  
(off 122 Bourke Street)  
MELBOURNE  
Phone: JM 1278

## CHEMICAL TANKS, DRUMS, CONTAINERS

coated against Acids  
and Alkalies

Articles of all Shapes and  
sizes PLASTIC COATED

**J. & F. BROCK BROS.**

PTY. LTD.

STOVE ENAMELLERS

5 Inkerman Street, St. Kilda  
Vic. Tel.: LA 1437.

## WELDON HARDWARE



Manufactured by

**W. H. WELLS PTY. LTD.**

127-128 Abbotsford St., Nth. Melb.

Interstate Representatives:  
N.S.W. Qld. & N.Z.: Essex R. Plett  
Pty. Ltd., 222 Clarence St., Sydney.  
South Australia: Wm. C. Keay, 161  
Rundle St., Adelaide. Western Aus-  
tralia: Associated Distributors, 880  
May St., Perth.



*Another advance by John Heine!*

## JOHN HEINE INCLINABLE PRESSES



201A Series 2  
202A Series 2  
203A Series 2  
ARE NOW FITTED WITH

### NON-METALLIC LAMINATED PLASTIC SPLIT BEARINGS

now known to the Trade as  
"John Heine Plasfab Bearings"  
The new bearings are proof against all those  
troubles arising from lack of lubrication, grit  
inclusion, etc. They are, in fact, very difficult  
to damage — even deliberately.

- We Pioneered Such Features As
- ★ Anti-click clutch mechanism
  - ★ Serrated, non-cushion bed
  - ★ Open-close con-rod lock screws
  - ★ Ball race fly wheel mountings
  - ★ Heavy "X" braced frame

*and now*

### THE NEW "PLASFAB BEARINGS"

AGAIN WE INTRODUCE A FEATURE WHICH HAS PROVED  
TO BE A STEPPING STONE IN POWER PRESS OPERATION

*Write for New Bulletin No 502*

# JOHN HEINE & SON PTY. LTD.

ALLEN STREET, LEICHHARDT, SYDNEY, N.S.W.

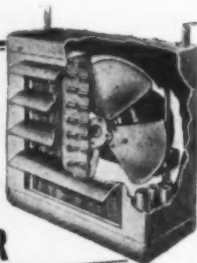
Telegraphic Address: "HEINESON," Sydney. 'Phone: LM 1444.

Representatives — In MELBOURNE, ADELAIDE and PERTH: McPHERSON'S LTD. In BRISBANE: ENGINEERING SUPPLY CO. OF AUST. LTD.  
In NEW ZEALAND: JOHN CHAMBERS & SON LTD.



Demand is still great  
but supply is much  
better — so you can

**ORDER NOW  
FOR THIS WINTER**



## RICHARDSON Unit Heaters

FOR FACTORIES, CHANGE-ROOMS, SHOPS, OFFICES, Etc.

The Richardson Unit Heater consists of an electrically driven fan arranged to deliver air through an extended-surface heating coil, which is supplied with a heating medium such as steam or hot water. The result is a steady stream of warm air, which is distributed rapidly and uniformly throughout the location.

Represented by

R. G. W.  
W. G. CROSSLE  
& CO. (S. S. W.)  
STONEY  
VINCENT VENT. &  
AIR COND. CO.  
NEWCASTLE  
W. G.  
ALBING & CO. LTD.  
PERTH  
TAS.  
MOORE BROS. (AUST.) LTD.  
HOBART, LAUNCESTON

OLIVAND  
CROSSLAND  
SANDERSON (DEV.) LTD.  
BRISBANE  
H.C.  
TAYLOR & LTD.  
CHRISTCHURCH  
N.Z.  
FRANK DE ROSE  
& CO.  
ADELPHI

**SALES ENGINEERS**  
**W. G. CROSSLE**  
& CO. PTY. LTD.

377 Little Collins St., Melbourne

Phone: MU 8195

**Machine tool manufacturers now  
need stock only ONE SWITCH to  
suit all different types of motors**

— a considerable saving of  
capital.

- Santon Rotary Switch will reverse all types of motors.
- Isolates all windings when "off."
- It is small and compact—can be made integral with the machine tool.

Rotary Switch Control offers big opportunities for  
Australian Manufacturers.

Sole Aust. Agent:

**M. G. THORNTWHAITE & CO.**  
43 Margaret St., Sydney — BX 3603

Interstate Agents:

Q'LAND — Parbury, Henty & Co. Pty. Ltd., 166 Edward St. Bris. — 82844  
VIC — A. V. H. Electrical Engineering Co., 50 Queen St. Melb. C.I. — MU 4252  
W.A. — S. Y. Gerasworthly, 49 St. George's Terrace, Perth — 83999



ROTARY **SANTON** SWITCHES

(Continued from page 36.)

their social organization can be regarded as an advance on our customs, is perhaps a matter of opinion.

The absolute equality of ownership of all tribal possessions would make even Stalin gnaw his moustache in self-criticism. The tribal lands belong to the whole tribe, and every animal brought back from the hunt is shared according to rules which give the successful hunter no advantage, and in time gives every individual a turn at receiving each particular cut of meat. This system of equal sharing makes life possible on a much lower total food bill than would be possible under our system, as there is no waste and no case of individual starvation among plenty. In this respect we can only hope that we are not more than fifty years behind them. As regards moral standards as a whole, we evidently have a long way to go to catch up to them.

Then there is the matter of physical health, which is perhaps more important than anything else in life, though we often like to pretend we are superior to such earthly considerations. Despite lack of hospitals, lack of any medical knowledge and even ignorance of the commoner causes of death, the average wild Aborigine is obviously a finer specimen than the average city-dweller. It was announced recently that dental services to out-back Aborigines in the Northern Territory were to be inaugurated . . . a very commendable move, since it has apparently become necessary; but dental treatment is not required by natives living on their native food. As one old Aborigine remarked to Mountford, "The white man, with his flour, is killing us" . . . though he was probably referring more to the degenerating effects of mission hand-outs, which break down normal tribal habits.

Despite our elaborate and expensive health schemes, it is probably too much to hope that we are not more than fifty years behind the "myalls" in our standards of health.

Another aspect in which we seem to lag behind is in the matter of bringing up children. Alan Marshall, C. F. Mountford, Mrs. E. George, in her "Two at Daly Waters", Mrs. Daisy Bates, and in fact everyone who has had any contact with Aboriginal children in their natural environment, are unanimous in their praise of their amiability and courtesy, and the harmonious manner in which they play together without squabbling . . . a phenomenon which strikes all white observers as quite startling. Parents never smack their children and seldom scold them . . . and apparently seldom have need to. Perhaps our child guidance experts should include a period among an aboriginal tribe as part of their education.

That their ability in the arts only needs training along western lines to reach the best standards according to western ideas has been proved by such men as Albert Namatjira and Harold Blair.

The Finest House in  
Australia for  
Engravings of Every  
Description

*The Randle*  
**Photo Engraving Co.**

PTY. LTD.

Photo Engravers, Stereotypers,  
and Designers

RANDLE HOUSE,  
73 FLINDERS STREET,  
DARLINGHURST, N.S.W.

Phones: FA 3155-9

**HOBSON  
ENGINEERING CO.**

★ REPUTATION  
SPECIALISTS ★

301 HENDERSON ROAD,  
ALEXANDRIA, N.S.W.

Approved A.I.D. Inspectors.  
Capstan and Auto Lathes  
Work to 1 1/2 in. capacity.  
Thread Rolling, Press Metal  
Works, Sheet Metal Works,  
Steel Fabrication, Oxy and  
Electric Welding.

**LA3414 LA1871**

"PILOT" 2 H.P. AND  
"WING" 3 H.P.  
4-CYCLE



Forced Air Cooled

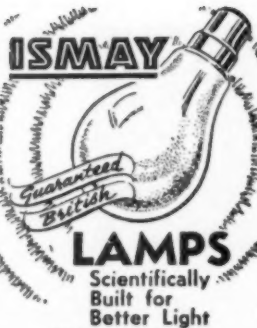
Petrol and Kerosene Engines

**R. B. CHURCHLEY PTY. LTD.**

Factory Representatives for  
all States

175 William Street, Melbourne  
Tels.: MU 1617, MU 4877.





**STEWART J. MATHEWS PTY. LTD.**  
217 William St., Melbourne, C.I.

Telephone: MU 6443

**Industrial Diamonds**  
**GUTWIRTH & SONS**  
PTY. LTD.

368 Collins Street, Melbourne  
P.O. Box 888, G.P.O. Tel.: MU 6118

## ELECTRICAL GRID RESISTANCES

One of our many  
Specialties

Contractors to N.S.W. Railways and  
30 years in N.S.W. Tramways.

**TAYLOR & WEARING**  
UNION FOUNDRY  
George Street, Redfern, N.S.W.  
Est. 1889. Tel.: MX 2118.

## LINSEED OILS of Guaranteed Quality

**MEGGITT LTD**  
and **BLUNDELL SPENCE (A.S.)**  
**LINSEED OILS**

Head Office: 87 YORK ST., SYDNEY.  
Box 1865, G.P.O., Sydney.  
Works: Farmville, Melbourne, Adelaide,  
Brisbane.



and surely it is up to us either to see that they have opportunities equal to our own, where their tribal life has already been broken, or else to leave well alone, where they are still living as their ancestors did.

It is a recognised historical fact that war-experienced barbarians usually succeed in overwhelming and destroying more peace-loving, more socially developed communities. It is an unpleasant thought that perhaps posterity might classify us among the barbarians and our dark landlords among the more socially developed communities.

## NEW MEMBERS.

### S.A. CHAMBER OF MANUFACTURES

Brick Manufacturers Ltd., 33 Pirie Street, Adelaide. Brick-making.

C. H. Denton, No. 2 Boiler House, Finsbury. Engineering.

F. Furlani, 3 Wilgena Avenue, Fullarton. Terrazzo and cement manufacturer.

G. S. Goldsmith, C.M.L. Building, 41 King William Street Adelaide. Order tailoring.

Greeneklee Motors, 136 Hindley Street, Adelaide. Engineering.

Huxtable Store for Men, 223 Victoria Square, Adelaide. Hatter and mercer.

Roma Roll, 1b Unley Road, Parkside. Dreammaking.

South Australian Co-operative Brick Co. Ltd., Harrison Road, Croydon. Brickmaking.

Surplus Military Stores, 243 Rundle Street, Adelaide. Distributor.

Trailer Sales & Service Pty. Ltd., 132 Hindley Street, Adelaide. Trailer distributors, repairs.

## "FEDERAL" MAINS CONNECTION BOXES.

### NEW FEATURES IN DESIGN.

Nilsen Cromie Pty. Ltd., Collingwood, Victoria, manufacturers of "Federal" Switch and Fuse Gear, are now presenting a new range of 2-, 3- and 4-way "Federal" Mains Connection Boxes suitable for use with Neutral Screened Service Entry Cable.

The boxes themselves can be sealed, all terminals are totally enclosed, and easy of access. They also incorporate the same non-tracking features as the existing line of "Federal" Mains Connection Boxes, in which all current-carrying parts are housed in a vitrified porcelain block.

The snug-fitting moulded plastic cover — easily detachable — provides complete protection from the elements.

Designated by the List Nos. 132F, 133F and 134F, these new "Federal" Mains Connection Boxes are available from all electrical merchants.



**NIFE'S LIFE  
WILL SAVE  
YOU MONEY**

Longer life, greater strength, simpler operation, no self-discharge! You'll want to know lots more about this all-steel battery and its positive time and money-saving advantages.

THE ...

## MODERN NICKEL-CADMIUM ALKALINE BATTERY

Is your plant getting all it should from the latest developments in industrial battery manufacture? The versatile Nife Alkaline Battery may solve your problem completely. Contact us by 'phone or mail and we'll be pleased to send detailed literature or call and see you at your convenience.

## MASSE BATTERIES PTY. LIMITED

115-119 CROWN STREET, SYDNEY. FA 7067.

132 Leicester Street, Carlton, Melbourne, N.3. FJ 6671.

Distributors in all States.

## It's Good Business to do business from Lismore !

Industrial and Commercial Opportunities, particularly those allied with or capable of using the products of primary industry are offering in Lismore and District.

**PRIMARY INDUSTRIES:** Dairying, Pig Raising, Pig Meats, Beef Cattle, Poultry, Vegetables and Farm Produce, Maize, Millet, Sugar Cane, Bananas, Pineapples, Timber, Fishing.

**ESTABLISHED SECONDARIES include:** Butter Factories (including Noree, the largest Co-op. in the world), Bacon and Cheese Factories, Ice Cream, Powdered Milk, Malted Milk, Casein, Textiles, Broom Manufacture, Sawmills, Plywood, Box Mills, Joinery, Furniture, Wire Works, Cement Pipes and kindred products, Farm and Sawmill Engineering, Foundry.

**MINERALS:** Zircon, Rutile, Coal, Limestone, Kaolin and Earths.

For information, write to ...

Secretary.

**LISMORE & DISTRICT CHAMBER OF COMMERCE**  
Box 3, Alstonville, N.S.W.



# INQUIRIES FOR PLANT MATERIAL AND AGENCIES

"THE AUSTRALASIAN MANUFACTURER'S" INQUIRY DEPARTMENT

This Inquiry Service is for the use of readers of "The Australasian Manufacturer" who wish to trace suppliers of Plant, Equipment and Materials, and for particulars of agencies offered. Address your inquiry to the Inquiry Department, and give the fullest possible particulars to enable us to put you in touch with the best sources of supply. **INCLUDE A STAMPED SELF-ADDRESSED ENVELOPE WITH YOUR INQUIRY.** It is essential that telephone inquiries be confirmed by letter. No charge is made for Inquiry Services, but normal advertising rates will be charged if agencies are sought by manufacturers' representatives or if goods are offered for sale. For the benefit of new subscribers, inquiries will be published in two or more consecutive issues.

## SPECIAL NEW INQUIRIES.

**WHEN REPLYING to an Inquiry, please quote the Reference Number and send your reply to the Inquiry Department, "The Australasian Manufacturer," Box 1687, G.P.O., Sydney. INCLUDE A PLAIN, STAMPED ENVELOPE so that we can forward your reply to the Inquirer.**

**SUPPLIES OF BURNT LIME:** Manufacturer requires regular small quantities of Limil (hydrated or slaked lime powder), burnt, or alternatively regular small quantities of burnt Limil powder. Write to Ref. 8395, c/o "The Australasian Manufacturer."

**ELECTRO-MAGNETIC AND ELECTRO-STATIC SEPARATORS:** Manufacturer desires to contact suppliers of Electro-Magnetic Separators and also Electro-Static Separators for the treatment of Beach Sands containing Ilmenite, Zircon and Rutile. Write to Ref. 8396, c/o "The Australasian Manufacturer."

**MILD STEEL BAR WANTED:** Tasmanian engineering organisation urgently requires 2 1/2 in. square mild steel bar, short ends or lengths. Enquirer is cutting bar into pieces 1 1/2 in. long. Write to Ref. 8397, c/o "The Australasian Manufacturer."

**DIESEL AIR COMPRESSOR UNIT:**—Vertical Southern Cross 4-Cylinder Engine, with C.P. Compressor. Displacement 100 cubic feet, with Air Receiver. Overhauled, guaranteed first-class order. Write to Ref. 6577, c/o "The Australasian Manufacturer."

## INDUSTRIAL SAND and SHOT BLASTING

J. NORRIS & CO.  
45 Pyrmont Bridge Road  
Pyrmont MW 2995

**BLANKING PRESS AND SHEET METAL MACHINE WANTED:** Sydney firm wants to buy a large double crank blanking press, also any large sheet metal machines. Write to Ref. 8398, c/o "The Australasian Manufacturer."

**SLOT MACHINES:** Singapore Company desires to contact Australian makers of slot (fruit) machines and also any general lines of slot amusement and vending machines. Write to Ref. 8399, c/o "The Australasian Manufacturer."

**KEROSENE BURNERS WANTED:** Victorian manufacturer of room heaters is endeavouring to find a supplier of Kerosene burners. Write to Ref. 8400, c/o "The Australasian Manufacturer."

**DOOR CLOSERS:** The manufacturer or distributor of the "Zeus" Door Closer, is requested to write to Ref. 8401, c/o "The Australasian Manufacturer."

**PAPER SHEETING MACHINE WANTED:** Inquirer wishes to purchase a Paper Sheeting Machine, suitable for sheeting paper from 26 in. roll stock. Slow speed machine would be suitable, and one needing repairs would be considered. Manufacturers or suppliers write to Ref. 8384, c/o "The Australasian Manufacturer."

**STEEL OFFCUTS FOR SALE:** A few tons of rectangular steel offcuts 4 1/2 in. x 9 1/2 in. and 6 1/2 in. x 9 1/2 in., 21-gauge. Apply J. G. Lloyd & Co. Pty. Ltd., 94 Pelham Street, Carlton, N.Z., Victoria. FJ 5121.

## TURNING CAPACITY AVAILABLE

6ft. Dia. x 12in. dia. — B/C.  
24in. x 8in. Faceplate  
on Production Run  
H. ROBERTS & CO.  
P.O. Box 87, Hornsby, N.S.W.  
Tel.: Berowra 237

**ZINC ROLLING MILL FOR SALE:** Overseas plant is available through an Australian organisation. Adaptable also for Aluminium and Copper. This mill is in new condition. Full particulars from Ref. 8387, c/o "The Australasian Manufacturer."

**SURPLUS MATERIALS FOR SALE—LACTIC ACID, DYES, LITHOPHONE, ETC.:** Melbourne firm has for sale the following surplus materials and the name and address of this inquirer will be supplied on application to Ref. 8394, c/o "The Australasian Manufacturer": (1) 44 gal. Lactic Acid, 50%; (2) 1 ton Lithophone; (3) 112 lbs. Zinc Oxide; (4) 400 lbs. Sod. Fluoride; (5) Different Acid and Pigment Dyes; and (6) Old Zinc plates.

**ENGINEER WANTS POSITION.** Scot at present in Victoria, 30, elec./mech. engineer, A.I.E.E., A.I.Mech.E. 15 years' practical/commercial experience, requires permanent responsible position. Write to H.R.M., c/o "The Australasian Manufacturer," Box 1687, G.P.O., Sydney.

## B.A. BRASS SCREWS

5,000 to 500,000  
All Sizes

A. & A. Engineering Co.  
26 CULWULLA STREET  
SOUTH HURSTVILLE, N.S.W.  
Phone: LU 2679

## ALUMINIUM ROD FOR SALE

55S. 3/8 in. Dia. 10ft. Lengths  
3,000ft. Available

208 Darling Street, Balmain, N.S.W.  
Phone: BW 2734

**HARDWARE AGENCIES—NEW ZEALAND:** New Zealand firm specialising in the sale of Builders' and Cabinetmakers' accessories and having contacts with all wholesalers in the hardware trade throughout New Zealand, desires to contact Australian manufacturers who are looking for an outlet for their products in the Dominion. If required, the goods could be either assembled or finished in New Zealand. If interested, write to Ref. 8390, c/o "The Australasian Manufacturer."

## SPRAY PAINTING

Specialists in

Brocade and Stove Enamel

WILSON & GILKES

469 Parramatta Road

LEICHHARDT, N.S.W.

Phone: LM 3604

## FOR AUSTRALIAN MANUFACTURERS

EXPERIENCED AND SPECIALISED  
REPRESENTATION IN LONDON

— Intimate knowledge of Australia and of Manufacture —

Our daily activities cover:  
Manufacturing Rights — Sole Agencies — Selecting Staff (Emigrants),  
Key Men, Technicians, Operatives — Materials, Plant, Machinery — All  
Technical Data — Information on New Products and Processes — All  
Facilities for Visitors, Secretarial, Hotels, Travelling, etc.

— Each Requirement receives Personal, Confidential and  
Immediate Attention —  
C. H. HORDERN & CO.

49 Connaught Street  
LONDON, W.2.

Cables: "OVSEASREP," London  
Tels: Pad. 3989, Amb. 4635



## Use This **DYNAMIC BALANCING** Service TO END VIBRATION, CUT COSTS DUE TO UNNECESSARY WEAR AND TEAR



We do not manufacture Balancing Machines for sale. Our business is to utilise our patent rights to perform this Balancing Service for our clients.

Our Dynamic Balancing Service put to work on your Fans, Rotors, Pump Impellers, Centrifuges, Shafts, Pulleys, Armatures, Turbines and Turbine Runners eliminates injurious vibration, provides smooth, efficient operation, prolongs the life of valuable equipment.

We are also equipped to provide experienced repair and maintenance service for all your electrical and mechanical equipment and give valuable information on how to achieve safe, more efficient operation from existing machines.

**JONES & RICKARD PTY. LTD.**  
MANUFACTURERS OF SPECIALISED ELECTRICAL EQUIPMENT  
525 ELIZABETH STREET, SYDNEY. MX 2097.

**ALUMINIUM FOR SALE:** Melbourne firm has the following Aluminium for sale: 2,452 lbs. 15 1/2 in. x 16 gauge SS A1. circles; 316 lbs. 7 1/2 in. x 16 gauge x 6 ft. 57S Strip; and 280 lbs. 8 1/2 in. x 16 gauge x 6 ft. 57S Strip. Price 3/- per lb. Write to Ref. 8388, c/o "The Australasian Manufacturer."

**BUSINESS EXECUTIVE WANTS POSITION:** Business Executive, 38, well educated, extensive local and overseas experience, accustomed to constructive planning and responsibility at top levels, seeks permanent position with progressive concern planning vigorous policy of expansion or engaged essential work where initiative, drive, and organising ability would be recognised. Wide experience in advertising and marketing management, transport, government contracts, office and personnel control. Salary is important, but future possibilities of primary interest. Would consider interstate or country appointment. Write to Ref. 8391, c/o "The Australasian Manufacturer."

**ENGINEERING BUSINESS IN MELBOURNE FOR SALE:** About 10 presses, up to 50 tons, Guillotine, Hardening plant, Toolroom, etc. Specialty lines with secure market. Reason for sale, bad health and shortage of working capital. 2,200 sq. ft. own premises, 4,500 sq. ft. rented. Total assets about £40-£45,000. Write to Ref. 8392, c/o "The Australasian Manufacturer."

**SPRING WIRE:** Sydney firm wants to purchase supplies, in quantity, of 8, 10, 11 or 12 S.W.G. Spring Wire. If you can supply, write to Ref. 8381, c/o "The Australasian Manufacturer."

**ALUMINIUM FOR EXCHANGE:** Adelaide firm has quantities 20-gauge aluminium for exchange on equipment tonnage basis for 72 in. x 36 in. x 16-gauge or near size. Full particulars write to Ref. 8393, c/o "The Australasian Manufacturer."

**FACTORY OR STOREROOM PREMISES AVAILABLE:** Owing to scarcity of raw materials, a Sydney manufacturer will have 2,000 feet new covered space, plus similar amount concrete yard available shortly. Stock records and clerical services provided. Offers to Ref. 8389, c/o "The Australasian Manufacturer."

**HEXAGON BRASS RODS—SUPPLIES WANTED:** Sydney firm needs approximately 300 feet of 0.5 Hexagon a/F Brass Rods, machining quality, but would be satisfied to obtain portion of this quantity, possibly from 2 or more sources. Any firm that can supply in full or a portion of the 300 feet is requested to communicate with Ref. 8382, c/o "The Australasian Manufacturer." The inquirer is also prepared to replace the material to the supplier when stocks on order from the mills come to hand or buy the material straight-out according to the wishes of the firm supplying.

**HEXAGON BOLTS AND NUTS, SURPLUS QUANTITY FOR SALE:** Sydney firm has available for sale, about 3 tons of surplus Hex. Bolts and Nuts, black, 1 1/2 in. dia., various lengths to 7 in. long, in good order and original bags. Full information from Ref. 8384, c/o "The Australasian Manufacturer."

**AGENCY AVAILABLE—TUNGSTEN CARBIDE TIPPED DRILL STEELS:** Inquirer desires to appoint distributors for Victoria and South Australia for the sale of Tungsten Carbide Tipped Drill Steels of Norwegian manufacture. If interested in this inquiry write to Ref. 8383, c/o "The Australasian Manufacturer."

**FOUNDRY SAND MILLS:** Manufacturers or firms who can supply a Small Foundry Sand Mill (New or Second-hand) are requested to write to Ref. 8385, c/o "The Australasian Manufacturer."

## SALES REPRESENTATION IN PORT KEMBLA

Mining Specialities is a well-established organisation operating in the Port Kembla area.

We are sales representatives in this district for several leading Australian manufacturers of engineering equipment and supplies and are prepared to handle additional lines on an agency basis.

### MINING SPECIALITIES

67 WENTWORTH STREET, PORT KEMBLA, N.S.W.  
164 BLAIR STREET, BONDI, N.S.W. Phone: FU 6957.

## AUTOMATIC BAR WORK STEEL OR BRASS

Capacity Available 1/2-2 1/2 inches

### PURVIS-GLOVER ENG. Pty. Ltd.

41 Moreland St. } FOOTSCRAY  
54 Hopkins St. } VICTORIA MW 2284

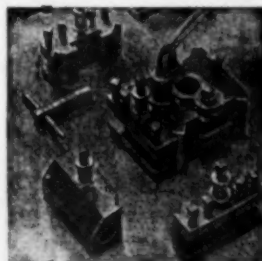
## For All Factory Canvasware

CANVAS BLINDS AND AWNINGS  
ALL TYPES MADE AND ERECTED

Canvas Component Parts, including Conveyor Belts — Filter Pads — Aprons — Refrigerator and Wireless Cabinet Covers — Canvas Slaves and Air Chutes for Ventilation — Tarpaulins — Tents — Industrial Waterproof Clothing.

**S. WALDER PTY. LTD., 340 Pitt St., Sydney**

Telephone: M 2761



## RAPID EXCELSIOR Lathe Tool Post

Any number of tools ready set — quickly changed.

Power feed for drilling.

Tools resharpened in position.

Height adjustment.

Ask for illustration.

**ACTA Pty. Ltd.**

15 O'CONNELL STREET

Phone: BW 7431

SYDNEY

## ELECTROPLATING

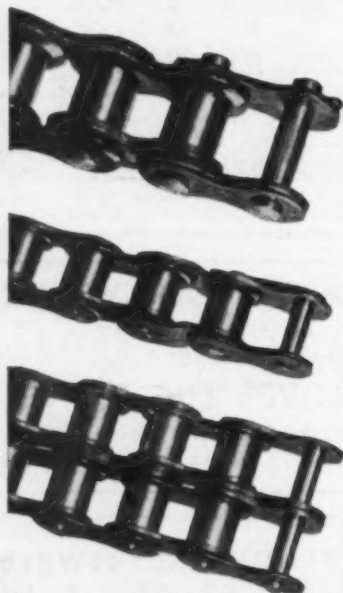
LARGE VAT AND POLISHING CAPACITY  
SPECIALISTS IN

ELECTROPLATED FINISHING  
OF TUBULAR FURNITURE

**MERLIN INDUSTRIAL ELECTROPLATERS**

207 TRAFALGAR LANE, ANNANDALE, N.S.W. Phone: MW 3222.





## INDUSTRIAL ROLLER CHAIN

MADE IN GERMANY

This industrial roller chain is produced to precision engineering standards in all required types and sizes. It is of robust construction and particularly recommended for efficient operation where heavy duty conditions are encountered and maximum strength is essential.

AVAILABLE FOR EARLY DELIVERY — INDENT ONLY

**SIMPLEX  
DUPLEX  
TRIPLEX**

Motor Cycle Chain Also Available

**ROBERT A. CONAGHAN & COMPANY**

239 Clarence Street, Sydney, N.S.W.

Telephone: BX 5825

## WHEN BUYING and SELLING TIME

AN ACCURATE MEASURE IS NECESSARY



Attendance  
Time  
Recorder

Just as materials are weighed and measured — so must hours and minutes be . . .

An *International* Time Recorder provides the means of mechanically measuring time.



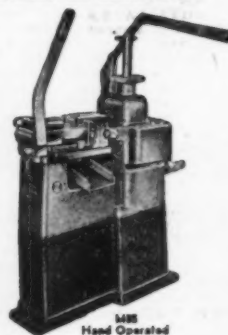
INTERNATIONAL BUSINESS MACHINES PTY. LTD.  
Sydney • Melbourne • Brisbane • Adelaide • Perth • Hobart

## DIECASTERS

FOR THOSE  
SMALL  
CASTINGS  
6 to 7 oz.  
Capacity  
Zinc Base  
Tin or Lead



MSEA Air Operated



MSE Hand Operated

- ★
- HIGH PRODUCTION RATE
- LOW MAINTENANCE COST
- OPERATED BY UNSKILLED LABOUR
- QUICK DIE CHANGE AND SET-UP
- LOW CAPITAL COST
- LOW DIE COST
- LOW PRODUCTION COST

Manufactured by

**METAL PRODUCTS PTY. LTD.**

43-59 Sandgate Road, Albion, Brisbane  
QUEENSLAND

UNDER LICENSE TO DISCASTING MACHINE TOOLS LTD., LONDON

Distributed by

NEW SOUTH WALES: Danson Machinery Co. Ltd., 248 Cleveland St., Redfern.  
VICTORIA: James Forbes & Co., 489 Elizabeth St., Melbourne. WESTERN AUSTRALIA:  
McLean Bros. & Rigg Ltd., Murray St., Perth. NEW ZEALAND: J. C. Riddell & Co.,  
Box 12, 1/2 Ara, Wellington.



**LADDERS, STEPS  
and TRETTLES**  
of Every Description.  
Quality Right—Price  
Right.

**Mote Ladders  
PTY. LTD.**

Works:  
33-44 VICTORIA RD.,  
DRUMMOYNE.  
Phone: WA 3821  
CATALOGUE ON  
APPLICATION.

## STEEL PRODUCTION LESS.

Production at the Newcastle works of the B.H.P. Co. Ltd. and in most sections of the Port Kembla works of Australian Iron and Steel Ltd. was lower in December. Latest output figures are:—

B.H.P. CO.			
NEWCASTLE—			
	Nov.	Dec.	
	Tons.	Tons.	
Pig iron .....	57,626	51,237	
Ingot steel .....	70,700	64,087	
Blooms, billets .....	63,970	57,114	
Billets, steel bar blooms, steel sections, 28 in. ....	48,045	40,439	
Merchant bar .....	34,670	29,221	
Rods .....	9,480	7,479	
Steel castings .....	2,909	3,491	
Direct metal castings .....	1,481	1,419	
WHYALLA, S.A.—			
Iron ore shipped .....	140,712	154,357	
Pig iron .....	15,024	8,678	
RAPID BAY—			
Limestone shipped .....	49,814	46,132	
AUST. IRON AND STEEL.			
	Nov.	Dec.	
	Tons.	Tons.	
Pig iron .....	45,439	46,767	
Ingot steel .....	54,569	49,506	
Blooms and slabs .....	49,899	44,086	
Sheet bar, rails, billets .....	47,404	42,630	
Steel section .....	10,845	11,085	
Merchant bar .....	9,105	9,712	
Castings .....	1,537	1,319	

## RESEARCH AIDS PLY- WOOD MANUFACTURE.

Ten years of research on Australian timbers to augment supplies of hoop pine for veneer and plywood manufacture are described in C.S.I.R.O. Bulletin No. 260, recently released.

Heavy inroads into hoop pine forests during and after the war have depleted the supplies of suitable logs of this timber which was formerly the chief veneer and plywood timber in Australia. The researches undertaken by the Division of Forest Products of C.S.I.R.O. on more than 60 species

indigenous to or extensively planted in Australia, have aided manufacturers in their search for substitute timbers.

The report provides, for each timber, information on the need for steam treatment or heating in water to soften the logs before

veneer cutting, the thickness of veneer which may be cut, recommended drying conditions, the proportion of usable dry veneer which may be recovered, and the quality characteristics and potential uses of the resulting veneer.

Mention is also made of the

treatment of veneers necessary to prevent staining by moulds and other fungi and to immunise sapwood against Lyctus borer attack.

Copies of Bulletin 260 are available on request from the Secretary, C.S.I.R.O., 314 Albert Street, East Melbourne.

# "Van Dorn" power

means

New Savings

and

More Profits

to you

**PORTABLE SANDERS:** Standard and Heavy Duty 7" models.

**BENCH GRINDERS:** Two models, 5" and 8" wheel diameters.

**PORTABLE GRINDERS:** Three models, 4", 5" and 6" wheel diameters.

**ELECTRIC POLISHERS:** Two models, Standard and Automatic.

**ELECTRIC DRILLS:** Models in capacities from 1" to 1 1/2" in steel—100% greater in wood.

**VIBRO CENTRIC GRINDERS:** Give finish to all valve seats in a few seconds.

**ELECTRIC SHEARS:** Cutting action always usable. For 12 and 14 gauge in steel.

**VALVE REFRACERS:** Grind factory-accurate angle on valve faces. Restore correct clearance on stem ends and tappets.

Take your pick for **FASTER**  
more accurate work

and your wise choice is a Van Dorn tool, backed by a world-wide reputation for the finest, precision-built engineering. Van Dorn also means complete replacement and spare parts service, plus a realistic guarantee on every product.

### DISTRIBUTORS:

NEW SOUTH WALES: William Adams & Co. Ltd., Brands Electrical & Engineering Supplies Pty. Ltd., Westcott Hazell & Co. Ltd., Westcott Hazell Engineering & Steel Ltd. NEWCASTLE: Engineers & Colliery Supplies Co. Ltd., William Adams & Co. Ltd. QUEENSLAND: Engineering Supply Co. of Aust. Ltd., Westcott Hazell Engineering & Steel Ltd. VICTORIA: A. H. Gibson (Elec.) Pty. Ltd., Keep Bros. & Wood Pty. Ltd., Westcott Hazell Engineering & Steel Ltd. SOUTH AUSTRALIA: Connell Limited, Westcott Hazell Engineering & Steel Ltd. WESTERN AUSTRALIA: Atkins (W.A.) Limited. TASMANIA: A. H. Gibson Electrical (Tasmania) Pty. Ltd., Westcott Hazell Engineering & Steel Ltd.

# "Van Dorn"

PORTABLE ELECTRIC TOOLS



# A FERRO ALLIED SERVICE TO THE AUSTRALIAN CERAMIC INDUSTRY

FERRO ENAMELS (AUST.) PTY. LTD. AND ALLIED ENGINEERING COMPANY, U.S.A.

are pleased to announce the completion of arrangements whereby the services of

## —FRANK P. HENDERSON— CERAMIC ENGINEER, U.S.A.

will be available for consultation with the Australian Ceramic Industry as from March 1, 1951, for an indefinite period. Whilst Mr. Henderson has a wide experience in the Ceramic Industry generally, he is particularly well qualified in problems associated with brick manufacture, including tunnel kilns, equipment design and plant layout for both the dry press and wet extrusion processes.

— Enquiries will be welcomed by —

## FERRO ENAMELS (AUST.) PTY. LTD.

27 BOURKE ROAD, ALEXANDRIA, N.S.W. Tel.: MX 1151.

### Pioneers of Copper and Asbestos Gaskets in Australia



Gaskets made  
for  
Diesel Engines  
Motor Cars  
Tractors  
Farm Engines  
Motor Boats

Contractors  
ARMY  
NAVY  
AIR FORCE  
  
NO ORDER TOO  
SMALL  
  
NO ORDER TOO  
LARGE

Copper and  
Asbestos  
RINGS  
All Sizes  
to  
14 1/2 inch outside  
Metric and Inch  
Measurements

SPECIALISTS in the manufacture of COPPER and ASBESTOS GASKETS  
GASKETS also made in any other material

ENQUIRIES INVITED

Fully Approved by Civil and Aircraft Production Authorities

## J. H. FARRER & CO. PTY. LTD.

ENGINEERS

67 Wellington Street, Collingwood, Melbourne, Victoria  
ESTABLISHED 1931 Telephone: JA 4087

### "FEDERAL" SWITCH AND FUSE GEAR.

NEW SINGLE POLE 45 AMP.  
250 VOLT. SWITCH.

Another noteworthy addition to the "Federal" range of switch and fuse gear is seen in the introduction of the "Federal" 145 AC Switch, by Nilsen Cromie Pty. Ltd., Collingwood, the manufacturers of this well-known line.



The "Federal" 145 AC is a single pole, 45 amp., 250 volt. production in a neatly-designed plastic case, with overall dimensions, 2 in. x 2 in. x 2 1/2 in.

Oversized fine silver contacts, generously proportioned terminals, and a rugged mechanism, with a positive always-dependable action, are features that make the "Federal" 145 AC a first class switch unit.

(Electrical merchants, in all States, have ample supplies available.)

### SAA WIRING RULES.

The Standards Association of Australia announces that copies of Notes on A.S. No. CC.1, Part I-1950, SAA Wiring Rules are now available.

The Notes set out changes in the fourth (1950) edition of the SAA Wiring Rules, Part I, as compared with the third (1940) edition, and their purpose is to draw attention to the more important specific changes which have been made in the Rules. In some instances, the technical sense of the change has been indicated, but in many cases this would involve tedious detail and the fact is simply noted that a change has been made, it being left to the reader to compare the old and the new versions. The information should be of assistance in obtaining a quick grasp of the new provisions.

The Notes are a small companion volume to the 1950 edition of the Wiring Rules; copies are on sale at the Headquarters of the Standards Association of Australia, Science House, Gloucester and Essex Streets, Sydney, and from branch offices in all capital cities of the Commonwealth, and Newcastle, N.S.W. The price is 2/-.

As a matter of further interest, copies of the Wiring Rules proper are now available with a hard



cover, at a cost of 10/- per copy, post free.

### THE 1951 BRITISH INDUSTRIES FAIR.

For the Birmingham section of the 1951 British Industries Fair at Castle Bromwich, where the buildings and surrounding ground is the property of the organisers, allocations are spread over a longer period, and final figures will not be ready for some time. It is probable, however, that the outdoor section will again be extended and it is certain that the outstanding feature will be the display of contractors' plant, which will cover 75,000 sq. ft. of exhibiting space—20,000 sq. ft. more than last year. There will be over 70 different types of machinery and equipment ranging from drill sharpeners to dam-building plant, and this section will be the most impressive show of construction equipment ever seen in Britain. Its location on the open-air display ground gives unusual facilities for demonstration and will be of particular interest to those countries where development projects are planned. This section is sponsored by the Federation of Manufacturers of Contractors' Plant.

### AIRCO ANNOUNCES NEW HARD-FACING CATALOGUE.

A new hard-facing catalogue has been announced by Airco Company International, A Division of Air Reduction Company, Incorporated.

The 20-page, illustrated catalogue contains detailed information on the complete Airco line of hard-facing alloys. Description of product, typical uses, mechanical properties, chemical analyses and a brief outline of recommended procedures are included. This data is further supplemented by allied information such as a tabulation of recommended grinding wheels for dressing deposits of Airco hard-facing alloys.

For a free copy of this new catalogue, readers should write to Airco Company International, A Division of Air Reduction Company, Incorporated, 33 West 42nd Street, New York 18, N.Y.

### STRIKING ELECTRIC LOG FIRE.

Once again "Corona" has set a pattern for originality and quality in the new "Corona" Model 40C Electric Log Fire just released, adding still another outstanding model to their very wide range of artificial coal effect fires.

It incorporates efficiency with attractive appearance, being greatly enhanced by the unique

Approved by authorities controlling electrical supply and installed in generating and distributing plants throughout the Commonwealth.

"MISCOLITE" is readily cut, bevelled, turned, milled, slotted, drilled and tapped.

Technical Information and Practical Service can be obtained from the Sole Agents:

SYDNEY: 168 Clarence St. Phone: BX 5011 (3 lines). MELBOURNE: (Regd. Office), 563-564 Bourke St. Phones: MU 6901 (3 lines), MU 1536, Cent. 6906. ADELAIDE: 136 Wymouth St. Phone: LA 1376. BRISBANE: Misco House, 134 Albert St. Phone: B 5803.

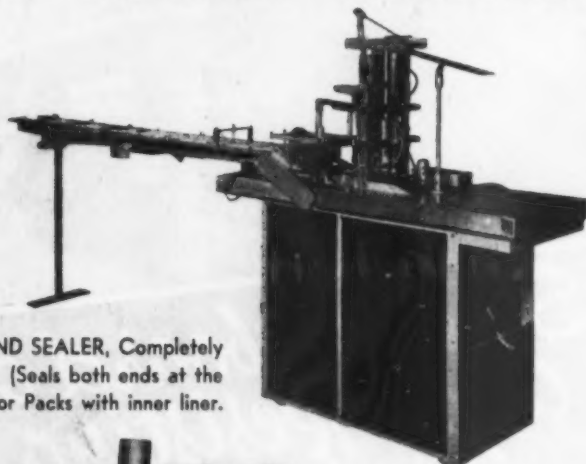
PERTH: 856 Hay St. Phone: B 3070. KALGOORLIE: Carr, Brookman and Cassidy Sts. Phone: K 724.

HOBART: 147 Liverpool St. Phone: 7849.

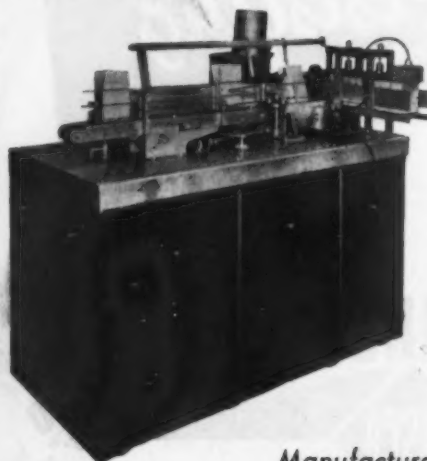
Interstate Agents for the products of the Ormiston Rubber Co. Pty. Ltd., Melbourne.



# "ADVANCE" AUTOMATIC CARTON SEALING — EQUIPMENT — FOR INCREASED PRODUCTION



**DOUBLE END SEALER, Completely Automatic.** (Seals both ends at the one time) for Packs with inner liner.



**TOP SEALER, Completely Automatic.**

Seals one end only with carton in vertical position (for Packs without inner liner).

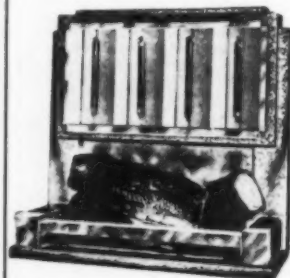
*Manufactured by*  
**ADVANCE MACHINERY PTY. LTD.**

**386 Sussex Street, Sydney, N.S.W.**

**Phone MA 5248**

arrangement of the 4 Vertical Bar heating which is set in individual solid brass heavily chromed reflectors.

The log fire with flickerscope, set in low modern hobs, has all the realism of genuine burning logs. This life-like effect was attained after much thought by the "Corona" Organisation. Their desire being to produce an electric log fire far in advance of anything previously conceived, both in design and efficiency, we may say the result is another example of outstanding Australian work-



**"Corona" Model 40C Electric Log Fire.**

manship of which we may well be proud. Even the smallest detail has not been overlooked.

Everything possible has been done to present to the public an article which will prove its worth in the years to come. The Sole Interstate Distributors, Stewart J. Mathews, Pty. Ltd., 217 King Street, Melbourne, anticipate very large orders for the "Corona" Model 40C Electric Log Fire, and it will undoubtedly prove a "sales winner" wherever on display.

Specifications are as follows:—2,300 Watts, 4 Bar, Width 22½ in., Height 21½ in., Depth 10 in. Further details may be obtained from the Interstate Distributors, Stewart J. Mathews, Pty. Ltd.

## NEW WORKS MANAGER OF "P. & R.", ADELAIDE.

Parsons & Robertson Ltd., Adelaide, have announced the appointment of Mr. Edward Turner as Works Manager, in succession to Mr. H. G. Pank, who has left the company to start in business on his own account. Mr. Turner has for many years been associated with the South Australian Railways, and prior to accepting his new appointment was in the Chief Mechanical Engineer's Department of the Railways.

## NEW GALVANISING COMPANY.

Johns & Waygood Ltd. has registered a new Company, Johnsway Galvanising Co. Ltd., to take over the galvanising section of the company's works. The new subsidiary will galvanise steel and other metals and treat and process metals.







# Abrasive-belt Finishing

## Improved equipment has widened range of applications

Abrasive-belt grinding is a relatively old method of finishing, originally developed for use in the woodworking industry. Since the early machines and abrasive belts were not suitable for use with a coolant, excessive heating and rapid loading of the belt occurred. With the introduction of plastic-bonded cloth belts having electrostatically applied abrasive, and the development of improved machines which permit grinding with a coolant, the application of the process has rapidly expanded to include the finishing of many different kinds of materials in a wide range of industries.

**D**URING the second world war rapid progress was made in the use of abrasive-belt machines for the economical finishing of flat and irregular surfaces. The difficult task of grinding the edges of armour plate was accomplished by this method, and in steel mills,

thinly coated belts provide less abrasive per unit of cost than solid grinding wheels. This may, however, be offset by the rapidity with which grinding is performed.

Abrasive-belt machines are of three main types, for platen, contact roll, and free-belt grinding.

method of abrasive-belt machining, and was originally employed only for wood sanding. It is still useful for grinding thermosetting plastic parts and zinc die-castings, as well as for light operations on iron castings. The principal objections to this type of grinding are the conse-

quency of belt change, and the fact that it is especially adaptable to parts on which flatness or dimensional accuracy must be held to close limits, and permits of high production rates at low cost for many classes of work.



Fig. 1. Abrasive-belt platen grinding. The work is ground on a straight section of the belt, which is supported from behind by a platen.



Fig. 2. Ball-shaped crank-handles are finish-ground by an abrasive belt which is formed to the desired contour by a contact roll.

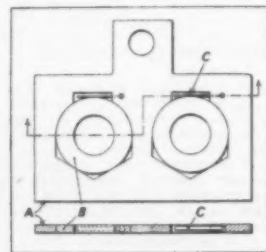


Fig. 3. Turn-over fixture employed to hold small cylindrical parts, such as washers, while grinding both sides on an abrasive-belt machine.

abrasive belts were used for polishing stainless-steel sheets. Today, aluminium, brass, copper, lead, cast iron, steel, glass, ceramics, and plastics are among the materials ground and polished by this method. Many of the present-day belt grinding applications are concerned with specific production operations, while the process is also applied to others in the tool-room, assembly department, and stock-room, and in connection with welding and maintenance work.

A major advantage of abrasive-belt grinding is the time saved and the high production obtained. Rapid stock removal is possible from metal, plastic, glass, or even carbide parts. However, where the amount and resistance of the material to be removed are such as to involve consumption of a considerable quantity of abrasive, the cost of the latter must be considered.

Any of these three types of machines may be used with or without coolant.

In abrasive-belt platen grinding, the work is ground on a straight section of the belt, which is supported by a platen or backing plate, as seen in Fig. 1. The advantage of this type of grinding is that a large area of the work can be finished at one time.

Dry platen grinding is the oldest

method of abrasive-belt machining, and was originally employed only for wood sanding. It is still useful for grinding thermosetting plastic parts and zinc die-castings, as well as for light operations on iron castings. The principal objections to this type of grinding are the conse-

quent heating of the work and platen, loading of the belt and the large amount of dust produced. To overcome these objections and increase the application of this method, reports W. A. Papworth, in "Machinery", abrasive-belt machines have been improved and plastic-bonded belts developed to permit grinding with a coolant.

Wet platen grinding is now a widely used and important branch of

Non-ferrous materials are readily surfaced by wet platen grinding, since such materials do not tend to stick to the wet belt and load it, as they do when grinding dry. Deeper cuts involving the removal of a greater volume of material can be taken more economically than when dry grinding, but shallow depths of cut are preferable. The approximate order of suitability of materials for wet platen grinding is as follows: Plastics, aluminium, brass, bronze, steel, and cast iron.

The lighter the cut, the greater the area which can be finished on abrasive-belt machines. Maximum stock removal for economical production is generally about  $\frac{1}{16}$  in. on non-ferrous materials and  $\frac{1}{32}$  in. on ferrous materials. The area to be finished should seldom exceed approximately 30 sq. in. on soft metals, and half this amount on iron or steel, even when very little stock is to be removed. If the work is designed with bosses to give an interrupted surface, much larger parts can be handled, since the area to be ground is reduced.

Multiple loading, to permit grinding several pieces simultaneously, is recommended in wet platen grinding. The workpieces should be staggered or arranged obliquely,

BELT SELECTION AND OPERATING CONDITIONS RECOMMENDED FOR WET BELT GRINDING OVER A PLATEN						
Material to be Ground	Abrasive	Grain Size		Belt Speed, Surface Feet per Min.	Pressure of Work Against Belt	Comments
		Roughing	Finishing			
Aluminium and brass	Silicon carbide	24 to 36	120 to 180	4,000 to 5,000	Light	Suitable and in most cases (40 to 12)
Copper and lead	Silicon carbide	40 to 60	120 to 180	3,500	Very light	Suitable and in most cases (40 to 12)
Cast iron	Silicon carbide	24 to 36	40 to 60	3,500 to 4,500	8 to 16 lb. in. (case belt) 20 to 30 lb. in. (cold belt)	Place water
Stainless	Aluminium oxide	36 to 60	120 to 180	3,500	8 to 16 lb. in. (case belt) 20 to 30 lb. in. (cold belt)	Suitable and in most cases (40 to 12)
Hard steel	Aluminium oxide	36 to 60	120 to 180	3,500 to 4,500	Heavy	Suitable and in most cases (40 to 12)
Glass and ceramics	Silicon carbide	24 to 36	120 to 180	3,500 to 4,500	Light	Place water
Plastics	Silicon carbide	60 to 120	120	3,500 to 4,500	Light	Place water



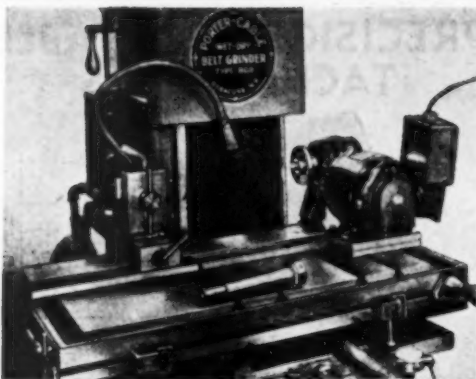


Fig. 4. Cylindrical sections of parts can be ground on an abrasive-belt machine by means of a motor-driven fixture equipped with centres for mounting the work.

In order to make use of as much belt width as possible and to permit the coolant to reach the surfaces under cut.

Abrasive-belt machining with a resilient or padded platen, using coolant, is suitable for irregular shaped pieces made from plastic or soft metal, including the inside surfaces of hook-shaped parts. It is particularly useful for blending different surfaces and for blending ground surfaces with unground portions of the work. Resilient platens are also employed where surfaces which are not quite flat must be finished and where it is important that the entire area be reached by the abrasive.

In wet resilient-platen grinding, the platen is usually formed to suit the work and padded with felt or sponge rubber, which, in turn, is covered with graphite-asbestos, waterproof beaded cloth, or leather. The life of any of these coverings can be lengthened by coating them with graphite and shellac.

With a resilient platen covering, a grease-paraffin treatment of the abrasive belt to prevent loading, and omission of the coolant, flat pieces which have been ground in previous operations can be polished. A graphite-asbestos covering over a hard platen enables some degree of polishing to be obtained in wet-belt grinding, involves only a minor sacrifice of flatness, and, in some cases, increases the belt life. Polishing of previously ground parts and the blending of irregularly curved surfaces prior to buffing are generally accomplished with fine greased abrasive belts of 180 or 220 grain size. Paraffin is applied to the belts with a rolled cloth dauber to avoid loading.

#### CONTACT-ROLL GRINDING.

With the contact-roll method of grinding, the abrasive belt is passed around a pulley or contact roll and is used either with or without coolant. For wet contact-roll grinding, plastic-bonded abrasive belts are employed with coolant and

lubricant to keep the belt sharp, minimize loading, and prevent burning. High rates of stock removal are possible, and a long belt life is generally obtained.

Wet contact-roll grinding is particularly suitable for removing parting lines and fins from brass, aluminum, and iron castings and steel forgings, as well as for rough-grinding such parts preparatory to machining.

Since a platen is not used with this method, approximate flatness can be obtained only by skilful manipulation of the work against the wheel. Difficulties are sometimes encountered in avoiding rounding of the ends of the work, which do not arise with platen grinding.

The smaller and harder the contact wheel, the narrower the band of contact between the abrasive belt and the workpiece. Owing to this narrow contact area, high belt speeds are permissible and considerable pressure can be exerted on the work in dry grinding with-

out loading the belt or burning the work.

Many different types of contact wheels are available, the choice depending upon the specific application and the hardness or softness of wheel required. Canvas wheels cannot be used with a coolant, but rubber-covered contact wheels are suitable for wet grinding.

General recommendations for the belt speeds to be used in contact-roll polishing are as follows:—

Material to be polished.	Belt speed (Surface ft. per min.)
Soft metals, (aluminium, brass)	7,500
Forged steel tools	7,000
Cast iron and mild steel	6,500
Alloy and stainless steel	6,000

If the belt glazes and dulls quickly at the recommended speed, a slower speed, a softer contact roll, a segmented contact roll, or

the use of silicon-carbide abrasive (as in the case of cast iron) may prove beneficial.

When an abrasive belt is travelling round a wheel, it cannot readily be bent laterally across the wheel. Lightweight abrasive belts running over a soft wheel at low speeds can, however, be flexed to grind irregular surfaces, as shown in Fig. 2. Such double flexure is rather hard on the belt fabric and is not recommended for heavy-duty work.

An effective arrangement for heavy duty or high-production grinding of this type is to place a formed contact roll or intermediate idler behind a straight section of the belt. The roll forms the belt to the desired contour without buckling or damage, and provides a firm support accurately shaped to the contour of the work.

When the shape of the contour is especially sharp, it may be necessary to flex the belt manually before it is used. Belts which operate over formed rolls should be no wider than necessary.

#### FREE-BELT GRINDING OF IRREGULAR CONTOURS.

Free-belt grinding is employed for parts having exceptionally irregular contours. With this method there is neither platen nor contact roll, the operator frequently using his fingers (protected by tape) behind the abrasive belt to twist it and follow the contour of the part. This type of operation has been used for many years in the furniture and woodworking trades for sanding rounded, irregular, and obstructed surfaces with garnet cloth. It is used to-day on plastic and metal for the grinding and polishing of surfaces having irregular curves and those which cannot be reached by a belt in any other way.

An application of wet free-belt grinding is the rounding or "peening" of the edges of glass. On

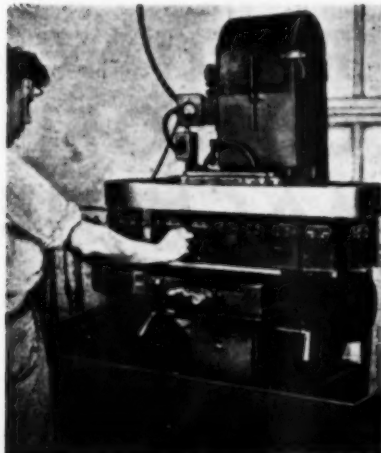


Fig. 5. An automatic work-handling fixture provided with 21 chain-driven work-carriers.



Fig. 6. Centreless belt grinder on which work ranging from 3/32 in. to 2 1/2 in. diameter can be ground without changing fixtures.



# RADIAC CUT-OFF MACHINE Type "F"



*Some interesting and exclusive features of this Radiac Bench Cut-off Machine:*

- Can be attached to any bench or movable bench table.
- Cuts solid stock up to 2in. diameter; taking up to 1½in. diameter.
- Uses 10in. disc, and operates at 13,000 surface feet.

Manufactured by  
**GEO. H. ALEXANDER MACHINERY LTD.**  
BIRMINGHAM, ENGLAND

*Factory Representatives for Australia and New Zealand*

## LEO ROGALY AND LEWIS

PTY. LIMITED

119-123 YORK ST., SYDNEY

Telephone: BX 4855

Telegrams: "ALEWIS," Sydney

## PRECISION PORTABLE TACHOMETERS



**SYNCHROTAC INSTRUMENT Co. Pty. Ltd.**  
142 QUEENSBERRY STREET, CARLTON, VICTORIA.

a standard abrasive-belt machine, free-belt grinding can be done just below the platen, above the contact rolls, or in a groove cut across the platen.

### SELECTION OF ABRASIVE BELTS.

Many variables are involved in the selection of abrasive belts for specific applications. The following recommendations are general, and modifications will, of course, be necessary to suit particular work. Aluminium-oxide abrasive belts are usually employed for the platen grinding of steel and high tensile-strength bronze, while silicon-carbide abrasive belts are used for grinding practically every other material. In dry contact-roll grinding, glue-bonded aluminium-oxide abrasive belts are generally employed on all materials for roughing and intermediate operations. Silicon-carbide abrasive, however, is used prior to buffing in polishing operations. The grain size of the abrasive depends upon the roughness of the surface to be ground, the depth of cut, and the degree of smoothness desired.

General recommendations for the belt speed, abrasive, grain size, and pressure to be used on various materials are given in the accompanying table. More pressure is required with aluminium-oxide belts than with silicon-carbide belts. When the work is applied to the belt by hand and it is impossible or unduly arduous to apply sufficient pressure, a change from aluminium-oxide to silicon-carbide abrasive and a coarser grain size may be helpful. In grinding flat surfaces, it is generally better to rough-grind to within 0.003 in. of the desired size with a coarse abrasive belt and then finish with a fine-grain belt.

A major requirement in belt grinding over a platen is that enough pressure be exerted to make the belt cut properly. On all but

the softest materials, a low belt speed and adequate pressure will generally give better results than high speeds and low pressures. Too high a belt speed and too little pressure tend to heat the work and glaze the abrasive. On the other hand, too low a speed and too much pressure tend to fracture the abrasive and dislodge it from the belt. Belt speeds for platen grinding are generally lower than those employed for contact-roll grinding.

Periodic dressing of the abrasive belt will counteract glazing. A blunt, partially worn wheel type dresser (of either the star-wheel or corrugated form) should be used to re-sharpen the belt. The coarser the belt, the more the belt life can be prolonged by dressing. The life of silicon-carbide abrasive can be increased more by dressing than can that of aluminium oxide.

Abrasive-belt ends may be joined by a diagonal lap, or they may be butt-jointed. Occasionally when using a diagonally lapped belt, more stock may be ground from the upper right corner of the work (looking toward the belt), or the right-hand end of a cylindrical surface. This result may be caused by uneven thickness of the belt.

The quantity of coolant which actually reaches the grinding area is an important factor in the relation between the belt speed, pressure, and size of machine (power) used. The grinding area in abrasive-belt machining is large, and very little of the heat generated by grinding is removed by conduction. Flooding of the work is desirable, but most of the cooling is done by the coolant which is carried to the actual grinding area. A trough can sometimes be provided on the fixture to convey coolant directly to the grinding area and thus minimize loss by splashing.

For grinding glass, ceramics, and plastics, plain water is used as a coolant. It is frequently flushed away without re-circulation because some kinds of plastics, for



**ALL PURPOSE  
Spring  
CLIPS**

**by HENDERSON'S**

— provide a handy place, when fitted around the home, garage or on the engineering workshop shadow-board, to hang your tools and implements to keep them neat and out of the way where they can't be mislaid, yet within easy reach as required.



★ Henderson's Spring Clips — another guaranteed product of Australia's leading Spring-makers — are made of high-quality, hardened and tempered steel. They are available to suit every purpose — singly, to a special design or on cards containing assorted sizes — from all Wholesalers, Hardware Stores and Garages throughout Australia. M87-12

## HENDERSON'S FEDERAL SPRING WORKS LIMITED

(Incorporated in Victoria)  
MELBOURNE HEAD OFFICE & WORKS, Alfred Street, North Melbourne, N.V. (F. 831)  
City Branch: 82 Elizabeth Street, Melbourne, C.I.  
SYDNEY: O'Rourke Street, Alexandria, N.S.W. M.K. 344

Example, cannot be filtered out of the water satisfactorily. A copious flow of coolant is desirable, especially on glass.

For cast iron, water with trisodium phosphate is recommended — about 1 oz. to the gallon. To prevent rusting, 1 oz. of nitrite of soda may be added to 40 gal. of water.

Soluble oil mixtures are employed for grinding most other materials. The proportion of water to oil depends upon the manufacturer's recommendation for the specific compound and upon the nature of the work. For example, in grind-

ing brass and copper, the mixture may be 80 parts of water to 1 part of soluble oil; for aluminium and soft steel, 40 to 1; and for stainless and hardened steels 20 to 1. Less oil promotes rapid cutting, while more oil improves the surface finish of the work and reduces the heat generated.

Soluble oil or a water-base coolant should never be used in grinding magnesium. A light grinding oil or paraffin is recommended for such operations. Magnesium chips should be removed from the machine frequently. Iron or steel parts should not be ground on a

machine containing magnesium chips.

Grinding oil or paraffin can also be used as a coolant on plastics or in other cases where water is unsuitable. Light grinding oil sometimes produces a better surface finish on aluminium than does soluble oil.

### SOME POINTS TO BE OBSERVED IN GRINDING.

Whenever possible, the work should be disposed with its longest dimension across the belt. In this way, a greater width of belt, carrying more coolant, is employed, and

faster, cooler grinding is possible. The object should be to minimize the distance through which the belt must carry the hot chips over the work.

Hollow rectangular parts and similar shaped pieces should be held at an angle to the direction of belt travel, so as to equalize the distance through which the belt travels over different portions of the work. Parts with bosses should be similarly tilted, so that one boss is not directly over another. Rapid oscillation of the parts minimizes

**BEHIND** the surging activity of production — in plants, factories and offices — assisting management and administration to attain peak organization and efficiency, will be found steel equipment by Brownbult . . . Brownbult steel equipment that is a worthy contribution to industrial and business efficiency . . . that is functionally designed, sturdily constructed, faithfully manufactured. Brownbult steel equipment is well worth waiting for.

## BEHIND THE WHEELS OF INDUSTRY

MODERN STEEL EQUIPMENT

BY

**Brownbult**

FOR COMMERCE AND INDUSTRY

E. T. BROWN LTD.  
Brownbult Steel Equipment Co. (Regd.)  
14-24 Alexandra Pde.,  
Clifton Hill, Victoria.  
(JW 2115)  
Brownbult (N.S.W.) Ltd.  
383 Bulwara Rd., Ultimo,  
Sydney.  
N.S.W. Sales & Show-  
room: 17 Castlereagh  
St., Sydney. (BW 5236).  
Representatives in all  
States.

*It's Better Built when it's Brownbult*

**SMITH BROS. PTY. LTD.**  
General Engravers

★ MACHINE ENGRAVING ★ ELECTROPLATING  
★ BRASSES ★ MEMORIAL TABLETS  
★ BUILDING PLATES ★ METAL STAMPINGS  
★ NAMEPLATES ★ STREET SIGNS

100 THE BROADWAY & THE BROADWAY  
MELBOURNE VICTORIA

## TIMBER!

Supplies of

- CASE TIMBERS
- HARDWOOD SCANTLINGS
- PINE SHELVING AND FLOORING
- FENCING MATERIAL
- PALLETS AND PLATFORMS

Obtainable from

**SMITH BROS. PTY. LTD.**  
767-778 BOTANY ROAD, WATERLOO, SYDNEY  
Telephone: MU 2241 (5 lines)

We specialise in the  
production of

**WOODEN HANDLES**  
for Hand Tools, Brushes,  
Toys, Kitchenware,  
Rubber Stamps, also  
Cores, Beads, etc.

**DELTA WOODTURNING CO.**  
Duffy Avenue, Thornleigh, N.S.W.  
Tel: JW 3201



## Porcelain Enamel

### for Lighting Reflectors

There is no substitute for modern porcelain enamelling . . .  
no alternative finish applicable to steel which has so many  
advantages where lighting reflectors are concerned—high  
reflectivity plus a permanent high-gloss, glass-hard surface  
resistant to dirt and abrasion.

Claude, equipped for production porcelain enamelling, is  
geared to produce to your requirements whether—

Fluorescent reflectors . . . . complete ready for wiring  
Spun reflectors . . . . . enamelling your spun metal  
Special designs . . . . working with your engineering  
department

*Investigate Claude porcelain enamelling—now!*

**CLAUDE**  
NEON LIMITED

PORCELAIN ENAMEL  FLUORESCENT LIGHTING  
NEON DISPLAYS

SYDNEY • MELBOURNE • BRISBANE • ADELAIDE • PERTH • HOBART • LAUNCESTON • NEWCASTLE

heating and thus reduces risk of burning. To obtain maximum accuracy or flatness, a short rapid oscillation is preferable to a longer and slower movement.

Concave surfaces are sometimes produced, due to expansion caused by heating during grinding and subsequent uneven contraction during cooling. The practice of supporting the work at the centre instead of at the edges, with consequent distortion during grinding, may also result in the formation of concave surfaces.

Factors which prevent a high degree of flatness being obtained on a part are insufficient belt tension, a worn platen, excessive belt speed, insufficient cooling, uneven pressure on different portions of the work, insecure mounting of the work, too long a grinding cycle, and the removal of too much stock with too fine a belt.

Adequate tension must be maintained on the abrasive belt while grinding to prevent the work from tearing the belt. When the machine is stopped and the coolant turned off, belt tension should be released to prevent the belt from breaking due to shrinkage.

Many advantages can be gained by designing the part to facilitate abrasive-belt machining. Thus surfaces to be belt-ground should be recessed whenever possible. Often the total area to be ground can be reduced by from 50 to 75 per cent. in this way.

#### DESIGN OF WORK-HOLDING FIXTURES.

Relatively simple and inexpensive work-holding fixtures can often be used on abrasive-belt machines. As the pressure of the belt is constantly downwards over the whole grinding area and outwards towards the fixture, light holding devices generally suffice. It is always desirable to support the work as close to the belt as possible. Since most belt grinding operations are rapidly performed (seldom requiring more than 30 sec. per part), provision for quick loading and unloading is essential.

It is frequently advantageous to provide a slightly resilient covering, such as a thin layer of firm rubber packing, on the work-supporting surfaces of the fixture. Burrs or other small projections on the part will sink into a covering of this kind, and the location of the work will not be affected. Such a covering also provides uniform support behind the work and may enable belt life to be increased.

When large quantities of small cylindrical parts, as, for example, the washers B, Fig. 3, are to be ground on both ends or sides, they can be loaded into through holes in the plate or paddle A of a turn-over fixture. The loaded paddle is placed against an angle-plate or backstop during grinding. When the washers have been ground on one side, the position of the paddle is reversed and the opposite sides are ground, the final thickness being controlled by a stop. If the parts are thin, a flat spring C can

(Turn to page 56.)



## Achievements in Chemical Research

A famous director of the Pasteur Institute in Paris once said: "Chemistry is the basis of everything and nothing escapes it." The truth of this statement is borne out by the research now being done at the Chemical Research Laboratory near London, which is maintained by Britain's Department of Scientific and Industrial Research. A recently published account of its activities reveals a wide diversity of interest, from studying the corrosion of water mains to the analysis of uranium ores; from collecting industrially important bacteria to formulating glues for light alloys.

TO-DAY the chemist's role is, indeed, of immense importance, though one little appreciated by the general public because his activities usually stop several steps before they affect daily life. It is, for example, the fertilizers which the chemist produces which make possible the intensive food production of to-day, but the farmer, the wholesaler, and the retailer intervene between the chemist and the public; similarly the chemist provides all the raw materials for the plastics industry, but it is the manufacturer who turns them into the scores of different products which we actually use—household gadgets, radio-cases, electrical insulators, leather-cloth, lenses, adhesives, nylon stockings, roof lights, fishing lines, and many more. The hundreds of different artificial dyes, too, which make life infinitely more colourful than it was even a century ago, are due entirely to the chemist.

Perhaps the most important—though certainly not the most spectacular of current work at Britain's Chemical Research Laboratory, says Trevor Williams, Deputy Editor of the scientific quarterly magazine "Endeavour" (London), deals with the prevention of corrosion of metals. The immense annual cost—which for the whole world must be measured in scores of millions of pounds every year—of corrosion is not at all generally realised. Every bit of exposed metal-work is liable to attack which can be prevented only by careful painting or other protective measures. All great iron structures, such as the Forth Bridge, in Scotland, demand the attention of a permanent gang of painters; by the time the end of one coat has been reached corrosion has again set in where the work was begun and the task must be started anew. The hulls of ships, the bodies of motor-cars, buried pipes, iron roofs, railways, railway lines and equipment, and so on are all under continuous and relentless attack.

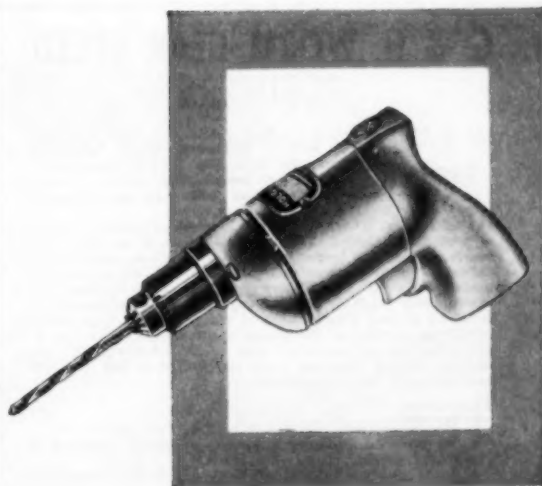
Recent research has shown that metallic corrosion has many causes, not the least surprising of which is attack by microbes. Water engineers who have to maintain pipes running through water-logged clay soils are con-

stantly in difficulties; even within a few weeks of installation heavy pipes may be eaten through and have to be dug up and replaced. When this is done, the clay round the break is always found to be deeply stained. Bacteriological examination shows that the clay is swarming with an unusual type of microbe capable of reducing salts known as sulphates to sulphuretted hydrogen; this substance then attacks the iron pipes and eats them away. Having discovered the causes of this particular type of corrosion, various methods of prevention have been worked out. Three good methods of protection have been found—to coat the pipes with bitumen, to lay them in good concrete surrounds, or to pack the trenches in which they lie with gravel. In addition, experiments are being carried out in London, in conjunction with the Metropolitan Water Board, on pipes buried in water-logged clay which has been heavily impregnated with the sulphate-reducing microbes. More than 20 different coatings are now under test, including several plastics and paints, rubber preparations, and bitumen reinforced with glass fibre.

Sulphate-reducing microbes have also been found to be a cause of trouble in stagnant water. In the summer months, for example, fresh paintwork on ships in the London docks may become shabby within a few days; the reason is that sulphuretted hydrogen, formed by microbes in the water, combines with lead in the paint to form black lead sulphide. Experiments are being made to see whether these microbes can be neutralised by another type which utilize sulphuretted hydrogen during their growth. For relatively small volumes of water slight acidification has been found a practical method of control.

Yet another branch of anti-corrosion research is of direct importance to motorists. Corrosion of the water-cooling system is liable to become so bad that the circulation of the water is seriously affected. It has been found, however, that the addition to the water of small quantities of two simple salts—sodium benzoate and sodium nitrate—effectively stops corrosion even when anti-freezing agents are being used.

(Turn to page 55.)



## It's all PROFIT after 15 days

The time saved, and increased production resulting from its use, will more than pay for a Black & Decker Portable Electric Drill—within 15 days. After that, time saved and increased production is all clear profit.

## Black & Decker

These "B. & D." Tools are of an advanced electrical and mechanical design. They embody many improvements that reduce wear and noise, and increase efficiency. Their reputation for quality is largely responsible for the wide popularity of "B. & D." Tools in industries to-day.

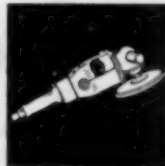
FOR EVERYTHING ELECTRICAL

## WARBURTON FRANKI LTD.

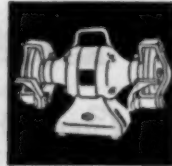
SYDNEY: 307-15 Kent Street ..... BK 2351  
MELBOURNE: 380 Bourke Street ..... MU 6365  
NEWCASTLE: 103 Scott Street ..... B 3741  
WOLLONGONG: 80 Keira Street ..... Wol. 888



PORTABLE ELECTRIC SAWS



PORTABLE ELECTRIC SANDERS



ELECTRIC BENCH GRINDERS



## G. & H. WORM GEAR SPEED REDUCERS

### W.R.U. Type

Gregory & Hickey Pty. Ltd. have developed the W.R.U. fan-cooled splash lubricated worm-gear Reduction Unit for economical and efficient transmission needs of every industry. Speed reductions approximately 5 to 1 up to 60 to 1 are obtainable.

The Worm and Wheel are housed in a strong cast-iron casing of neat design, which affords rigid support to the gears and bearings, and also forms an oil bath giving adequate lubrication. The unit is constructed to withstand the usual overloads, and the shafts and bearings are designed for overhanging loads. The bearings can be interchanged to give any desired arrangement of output shaft. The system of ribbing adopted on the casing ensures rigidity, as well as providing for dissipation of heat. The joints are oil tight and the various holes are bored and drilled in figs. ensuring accuracy and interchangeability.

#### FEATURES:

1. Is compact and requires very little floor space.
2. Requires no attention other than occasional checking of the oil level.
3. Runs with the highest efficiency and ensures a positive transmission.
4. Silent and clean in operation.
5. Not affected by dirt or dust externally.

**GREGORY & HICKEY PTY. LTD.**

49 GREEK STREET, GLEBE, N.S.W.

'Phone: MW 2128



Gear Specialists with facilities for handling any gear reducer problem, also Single Helical and Straight Tooth Spurs, Worm Gears, Bevel Gears, etc.

*Crest*



THIS IS YOUR GUARANTEE OF  
UNSURPASSED QUALITY AND  
UNIFORMITY.

**Zinc Oxide**

Manufactured in Australia by  
**Crest Chemical Company Pty. Ltd.**  
PERRY ST., MATRAVILLE, N.S.W.  
Telephone FJ2493.

**Oildag**  
Colloidal Graphite in Oil

**Aquadag**  
Colloidal Graphite in Water

**dag**  
COLLOIDAL  
GRAPHITE

*In Fine Dispersions*

"dag" is the Registered Trade Mark of Acheson Colloids Ltd., London. It is your Guarantee of Quality in all types of GENUINE Colloidal Graphite Dispersions.

These versatile products are indispensable to modern industry where high temperature or lubrication problems arise.

Die Casting, Drop Forging, Metal Drawing, and Extrusion firms are invited to inquire for technical information from:



SOLE AGENTS IN  
AUSTRALIA:



**ENGINEERING & INDUSTRIAL SUPPLIES CO.**

28 BOND STREET, SYDNEY, N.S.W. Telephones: BU 1307 and LF 1549.  
Interstate Distributors: Ramsay & Trengowan Ltd., 488 Latrobe Street, Melbourne, Victoria; G. H. O'Brien, 638 Elizabeth Street, Melbourne, Vic.; Atkins (W.A.) Ltd., 604 Hay Street, Perth, W.A.



(Continued from page 53.)

The addition of the same salts to rubber latex yields a product which is most satisfactory for forming a protective film on machined parts. Quite another part of the laboratory's work deals with an important type of fertilizer-phosphate. Extensive experiments are being carried out to see whether it is possible to convert phosphate rock into soluble phosphate suitable for agriculture. Although no industrially practicable process has yet been worked out the results are promising and field trials of the products have been arranged. Notice of this research comes at an appropriate moment, for it has recently been discovered that Britain possesses deposits of potash—another essential fertilizer—so great that they should last for at least a century.

Modern research on the nature of metals—which is having far-reaching practical results in the development of new alloys—frequently demands metals of extremely high purity. The laboratory has, therefore, begun a collection—which can be drawn on by all other approved laboratories—of such metals, attention being first given to chromium, antimony, iron, tantalum, and lithium. Comparable with this is the formation of a large collection of highly purified organic chemicals needed for research purposes.

## Marine Diesels

(Continued from page 32.)

such "H" sections were butt welded together continuously welded along the flange edges to form the box-like column.

The various welding operations are shown in Figs. 2, 3, and 4. In each column there are approximately 200 feet of  $\frac{1}{2}$  in. fillet welds, 50 feet of butt welds in  $\frac{13}{16}$  in. to  $1\frac{1}{2}$  in. thick plates, and 20 feet of butt welds in  $\frac{9}{16}$  in. plate.

Where the joints could be welded from both sides no plate edge preparation was employed, as the hidden arc Lincolnweld process ensured extremely deep weld penetration. Where, however, only one side of the joint was accessible a limited "V" type preparation was used.

For joining the two "H" sections together, the edges of the flanges were bevelled to give a 60 deg. opening, with landings of from  $\frac{1}{2}$  in. to  $\frac{1}{4}$  in., depending upon the plate thickness. The use of the Lincolnweld automatic hidden arc process not only greatly decreased necessity for extensive plate edge preparation, but the high welding currents available—

*"Give Us the Tools and We Will Finish the Job"*



## P & N HAND TAPS ON ANY JOB

*will "clean" up the work . . .*

It takes altogether twenty controlled operations to manufacture every P. & N. Hand Tap—and the result is a tap, made to \*British Standard Grade 1 Specifications, No. 949, that is the equal of any in the world in material, in heat treatment, in work accuracy of thread, form and size. On the job, this means clean, accurate threads, longer tap life and fewer replacements.


\*EXAMPLES: Total tolerance allowable on effective diameter between maximum-minimum size is .0012 in. for  $\frac{1}{4}$  in. Whit. Hand Tap; is .0017 in. for  $\frac{5}{16}$  in. and .0019 in. for  $\frac{7}{16}$  in. Whit. Hand Taps.

From all Leading  
Hardware Houses  
throughout Australia




PATIENCE & NICHOLSON LTD., MARYBOROUGH, VICTORIA  
*Sales and Technical Service - 573 BOULEVARD STREET, MELBOURNE, VIC.*



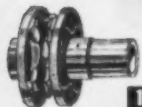


## ANCHOR PULLEY 1/2-30

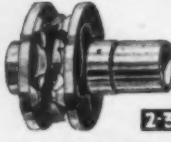
## CHAIN BLOCKS TONS CAPACITY



**1/2 TON**



**1 TON**



**2-30 TONS**

ALL SIZES ARE FITTED WITH BALL BEARINGS, and PATENT SPROCKET having MACHINE-CUT POCKETS

Write for Catalogue showing all Anchor Products

CHAIN BLOCKS, GIRDER TROLLEYS, RACK AND PINION JACKS, STACKING MACHINES, HAND WINCHES, LIFTING TRUCKS.


Sole Representatives for N.S.W., Qld., S.A., W.A. and N.Z.:

**JOHNSTON & GASTON PTY. LTD.**

**ANCHOR ENGINEERING CO. PTY. LTD.**

89-93 CROWN ST. RICHMOND, VIC.

TELEGR. ANCHORENG · PHONE. JA 2500.



**REMEMBER !**

## TALOIL INDUSTRIES PTY. LTD.

*Are Manufacturers of*

**DISTILLED**

**OLEIC ACID — STEARIC ACID**

**GLYCERINE**

**MIXED FATTY ACIDS**

**1276 BUNNERONG RD., MATRAVILLE, N.S.W.**

Phone: FJ 2841

## BRASS

## RODS & TUBES

We carry a comprehensive range of brass rods and tubes in all sizes and will value your enquiries.

## WRIGHT AND COMPANY

For Better Metal Service

81 CLARENCE STREET, SYDNEY

Phone: EX 1211 (6 lines)

## Arkon FLOW INDICATOR

IS THE COOLING WATER CIRCULATING ?  
IS THE BEARER GETTING THE OIL ?



The oil or water spins a chromium-plated ring under a glass dome. If the flow stops, the ring stops spinning and warns you that something has gone wrong.

### IMMEDIATE DELIVERY

N.S.W.: H. G. Thornthwaite & Co., 43 Margaret St., Sydney (BX 3003). VIC.: Horrocks Rosburgh Pty. Ltd., 517-9 Little Collins St., Melbourne. S.A.: E. Treiving & Son Ltd., Light Square, Adelaide. Q'LAND: Farbury, Henty & Co. Pty. Ltd., 106 Edward St., Brisbane. TAS.: Douglas & Fraser, 41 Paterson St., Launceston.

as high as 1,050 amps. D.C.—made it possible to weld in a single pass plate as heavy as 1 1/2 in. thick. The resultant welding speeds attained are estimated as five times faster than conventional hand welding.

The over-all advantages of decreased plate preparation, deep weld penetration and increased welding speeds, which are inherent to the Lincolnweld automatic process, were still further increased by the use of semi-automatic Manual Lincolnwelding at certain points in the fabrication.

Normally, the heavy weldments were located by travelling gantry beneath the automatic head for welding in the gravity feed position and supported in various positions by a simple framework. Where, however, the length of run was very limited, or it was uneconomical to re-position the weldment, recourse was made to the highly flexible, manually-operated semi-automatic. This equipment, capable of welding at currents as high as 600 amp. D.C., requires practically no set-up, as the "gun" is operated manually, and may therefore be positioned wherever desired.

Some idea of the size of these Doxford Diesels—the largest to be built in Australia—may be gained from the following general descriptions: 4 cylinder, 2-stroke, rated at 2,800 B.H.P. at 110 r.p.m. B.M.E.P. 90 p.s.i. Bore 560 mm. Each cylinder has two separate pistons with a combined stroke of 2,160 mm. Upper piston stroke 910 mm, lower piston stroke 1,250 mm. Fuel consumption is approximately 0.35 lb. per B.H.P. per hour. Fuel injection is by 4 cylinder mechanical pump with common rail distribution to each individual engine cylinder. A patent Doxford-Bibby Detuner flywheel automatically detunes the tail-

shaft-crankshaft system, preventing development of excessive torsional vibrations.

## Abrasive-Belt Finishing

(Continued from page 52).

be fitted at one side of each hole in the paddle to hold them in place.

Maximum precision is obtained with this type of fixture when only two parts, spaced to an overall width of about 6 in., are ground at one time. With small parts, or when less accuracy is necessary, two or more rows of parts can be ground at once. In such cases, the parts in alternate rows should be staggered.

The motor-driven fixture seen in Fig. 4 is mounted on the table of an abrasive-belt machine for grinding parts of cylindrical cross-section. The part is rotated between centres and fed in to the belt. In some instances, the work is oscillated slightly.

For quantity production automatic work-handling fixtures such as that shown in Fig. 5 are suitable. This chain-driven fixture has 21 work-carriers. As each carrier passes across the belt it is automatically fed forward and then retracted. A production of from 1,000 to 3,000 parts per hour is obtained with this device. Vacuum type fixtures are satisfactory for holding some kinds of work.

Work ranging from 1/8 in. to 2 1/2 in. in diameter can be handled in one fixture on the centreless belt grinder seen in Fig. 6. The endless abrasive belt passes over a resilient contact roll, which eliminates chatter and produces a smooth finish. The regulating wheel controls both the speed and feed of the work.

**EXPORTERS — IMPORTERS**  
**GUTWIRTH & SONS**  
PTY. LTD.  
296 Collins Street  
MELBOURNE, VICTORIA  
Telephone: Cent. 4618



## Better Silver Brazing

### Profit and Production in a Half-dozen Simple Steps

What is silver alloy brazing? When are these alloys used? Where and how can they be used to the greatest advantage? Essentially, silver alloy brazing is the phenomenon of wetting a metallic surface with a molten silver alloy and obtaining a bond between the metal joined and the brazing alloy. There are factors which affect the strength of such a joint but in the main the first requisite for a silver brazed joint is that the brazing alloy be capable of wetting the joint surface. Certain metals are incapable of being wetted by these brazing alloys principally because their melting point is very close to or below the flow point of the brazing alloy. In general, copper and copper alloys, nickel and nickel alloys and the ferrous metals, including stainless steel, malleable, and cast iron are routine items for the brazing operator.

**H**IGH-strength silver-alloy brazed joints depend upon these factors:

1. The degree to which the brazing alloy will wet and bond in the materials to be joined.
2. The thickness of the brazing alloy in the joint.
3. The strength of the metal or metals being joined.
4. The amount of voids or flux inclusions in the joint.
5. The mechanical characteristics of the joint design.

It will be noticed that the strength of the brazing alloy itself is not mentioned as a pertinent factor in a consideration of joint strength. This omission is intentional. Failure under stress, in the low strength materials such as some ferrous and copper alloys, with tensile values below that of the brazing alloy, will occur outside the joint area if it is properly made, and in the harder materials, the failure will occur in the joint at loads far in excess of the brazing alloy strength.

Most metals, except those previously noted, are readily wetted and bonded by the low-temperature silver brazing alloys, with a resultant joint strength greater than that of the brazing alloy. Certain materials require special attention for the attainment of maximum joint strength. Two such considerations are, special flux for aluminium bronze alloys and a brazing alloy containing a small percentage of nickel for brazing certain types of carbides. In both

of these cases the variation concerns primarily the wetting of the material being joined.

#### GOOD DESIGN NECESSARY.

An important consideration with respect to the thickness of the brazing alloy in the joint is the economy to be achieved from good design. The joint thickness can have an appreciable effect on the cost of a brazing operation particularly when the joint area is large. While this is important it is secondary to the effect of joint thickness on the strength of the joint.

From these preceding data, says Roger Metzler in an article in "The Machinist", it is quite apparent that no broad statement or empirical formula could be developed to define or establish the strength of a silver-alloy brazed joint. For purposes of placing a limit, however, it has been established that under proper metallurgical and mechanical conditions it is possible to obtain a silver-alloy brazed joint with tensile strengths up to 130,000 psi and shear strengths to 48,000 psi.

Before developing the physical factors which form a part of good brazing procedure, let us consider some of the known extremes of mechanical working to which silver-alloy brazed joints have been subjected. Copper and brass rods, butt brazed, have been drawn to fine wire, and plates have been clad with other metals by brazing and rolled into thin sheets. Motor-

cycle frames fabricated by the silver alloy brazing of the tubular member have been used by dare-devil exhibitionists in flying leaps over automobiles and similar obstacles.

#### SIX DEFINITE STEPS.

However, these results are not obtainable without some preparation, some definite procedure, or

some effort on the part of the brazer. For simplification and a clear-cut approach to the use of silver brazing alloys the proper brazing method has been set down as the following Fundamentals of Silver Alloy Brazing:

1. Good fit and proper clearance.
2. Clean metal.
3. Proper fluxing.
4. Assembly and supporting.

### FOR ALL TUBE AND PIPE BENDING PROBLEMS

Specialists in  
Steam and Refrigeration Coil Making  
General Pipe Bending and Coppersmithing  
Also equipped for  
Arc and Oxy Welding — Fabricating

**W. R. SKINNER**

186 Sussex Street, North Coburg, Victoria

### THE HIPSLEWELL DRILLING MACHINE



#### CAPACITY 6-3/32"

A compact, bench-mounted motorised drilling unit for the drilling of fine holes by instrument manufacturers or by jewellers.

#### MODEL 222 OVERALL DIMENSIONS

Height ..... 30" Length ..... 15"  
Width ..... 11"  
Nett Weight ..... 32 lbs.  
(Including Motor)


The spindle is mounted in ball bearings in a fixed head and is driven at 3-speed ratios (1:1, 1.4:1, 1.8:1) by a 1/5 H.P. at 7,000 R.P.M. universal motor. Drilling head can be adjusted for height or swung laterally into position and clamped to the base. The work is raised to the drill on a 3/4" diam. table which is controlled by a sensitive finger lever and adjustable depth stop.

Distributors in Victoria, South Australia and Western Australia:  
**McPHERSON'S LIMITED**

**HIPSLEYS LIMITED**  
27-45 PALMER STREET, SYDNEY



**M&W**  
**ENGINEERS' PRECISION**  
**AND HAND TOOLS**



*are pre-eminent in the  
Engineering World  
because of their*

**FINE ACCURACY AND  
HIGH QUALITY**

Write for Illustrated Catalogue  
Commonwealth Representative  
**THOMAS C. BROWN  
& CO. PTY. LTD.**  
181 CLARENCE STREET SYDNEY  
Telephone: 123, 124, 125  
Fax: 1024, 6, 6, 6

MEMBERS OF THE GAUGE AND TOOL MAKERS ASSOCIATION  
SUPPLIED BY ALL GOOD TOOL DEALERS  
**M&W MOORE & WRIGHT SHEFFIELD LTD**  
147-148 NORTON LANE - MEADOWNHEAD  
SHEFFIELD IN ENGLAND

## STEAM TRAPS



### LATEST DEVELOPMENTS

- Traps manufactured completely from Bar Stock, effecting **LOWEST** cost.
- Complete replacement of the **ONLY** moving part and seat at minimum cost without removal from line.
- Widest operating range (2-250 lb. sq. in.) without adjustment.
- Highest condensate capacity over range.

LITERATURE ON REQUEST

**TOROID INDUSTRIAL SUPPLIES Pty. Ltd.**

528-530 Collins St., Melbourne, Aust.

Phones: MB 2374 and MB 2375

INTERSTATE DISTRIBUTING AGENTS:  
SYDNEY: Toroid Industrial Supplies (N.S.W.)  
Pty. Ltd., MX 2848. BRISBANE: W. E. Peter-  
man & Son, phones B 3088-9. PERTH:  
McLean Bros. & Riggs Ltd. LAUNCESTON:  
Douglas & Fraser.



5. Heating and flowing the alloy.
6. Final cleaning.

Silver alloy brazing efficiency depends to a large extent on the adherence of the designer and the brazing operator to these six fundamentals. To more thoroughly understand the mechanics of these steps, each step should be examined in detail.

"Good fit and proper clearance" was covered quite completely under the metallurgical aspects of silver alloy brazing. The importance of this step makes it worth repeating. Both for economy and maximum strength, the joint clearance should be kept as close to 0.0015 in. as possible. Another factor, not previously mentioned, is the effect of capillarity which is enhanced by close tolerances. This force draws the molten brazing alloy through-out the joint thus ensuring a complete bond. Appearance too, can be an item of concern. The fine line of exposed brazing alloy in a properly made joint can add to the sales appeal of a manufactured article while a large gap may detract from its appearance.

"Clean Metal" is a self-evident requirement. While the brazing flux will protect the metals from oxidation during the heating and cooling cycles, it will not remove oil, grease, excessive rust, or scale present on the metal to be joined.

"Proper fluxing," the third fundamental, means not only sufficient flux of proper consistency, but also the fluxing of the proper area for complete protection. Frequently, parts to be brazed are so constructed that direct impingement of the heating flame on, or adjacent to, the joint area, cannot be avoided. In such circumstances an extra quantity of flux should be applied to prevent loss of fluxing action. This loss is a result of the instability of the flux at temperatures in excess of 1600 F. When the flame impinges directly on the flux, it is impossible to prevent the temperature from exceeding the 1600 figure and "spending" the flux.

All areas adjacent to the joint, which require protection from oxidation should be coated with flux. Flux should not be thinned too greatly in order to prevent the loss of protection by an inadequate amount. If Handy Flux is heated to approximately 180 F., it will spread farther, give adequate coverage and economy not obtainable by thinning.

As far as possible, parts to be brazed should be self-supporting or self-jigging to meet the fourth fundamental, "Assembly and Supporting." By this means, the loss of heat to the jig is reduced or eliminated and, of course, the heating time will be shortened. All jigs, where possible, should be designed to prevent heat absorption by the fixture in the joint area. The jig should hold the parts rigidly enough to prevent movement of the parts during the cooling cycle, and yet not prevent normal metal contraction.

Alloy can be applied either by hand feeding when the parts are

(Turn to page 60.)

## Manufacturing Engineers

Automatic and Capstan  
Turning, Milling, Drilling,  
Cutter Grinding

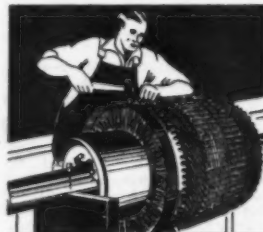
GENERAL MACHINING  
AND ASSEMBLY

**W. B. STEEN**  
**PTY. LTD.**

129 Palmer St., Richmond, Vic.

'Phone: JA 6700

For Precision and Service



### ANY HOUR OF DAY OR NIGHT

- Breakdown Service is instantly available.
- Transformers, Motors, Switchboards, etc., supplied and installed.

**STOWE ELECTRIC PTY. LTD.**

2-8 DRUITT PLACE, SYDNEY.

'Phone: MA 0071 (4 Lines).

**CODE**

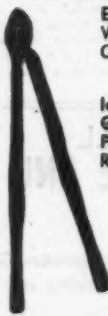
### PRUNING SHEARS

Essential in  
Vineyards &  
Orchards.

Ideal for  
General  
Pruning  
Requirements.

The  
World's  
Best.

OBTAINABLE  
ALL STORES



Agents:

F. W. GREEN  
20 Queen Street, Melbourne.  
FARLEY & FARMY  
Granfell Street, Adelaide



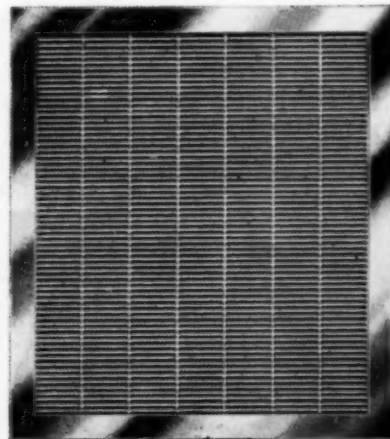
# The "V" TYPE Grille

**DISTINCTIVE in DESIGN**

In providing a minimum resistance to air flow combined with maximum concealment, our "V" type Grille is the nearest approach to the ideal. The method of construction, which allies mechanical strength with tasteful appearance, allows for a diversity of sizes and shapes with flat or curved surfaces, thus offering unique opportunities for the application of the Grille to the widest variety of purposes.

Standard Grilles are constructed from 20 S.W.G. steel which provides great strength and rigidity. They have a free area of 78%. 22 S.W.G. steel may be specified where the maximum free area of 85% is considered the greater advantage.

Standard finish is one coat cellulose primer to permit adaption to any colour scheme. Representative range of sizes in stock. Return air and ventilating Grilles also suitable for enclosures.



**85%**  
FREE AREA  
*with*  
**MAXIMUM CONCEALMENT**

**G. R. GAYFER & CO. PTY. LTD.**

52 PITT STREET, SYDNEY, N.S.W. Telephone: BU 1082.



**dependable Grinding Wheels**

**ASSIST THE WHEELS OF INDUSTRY**

**ABRASIVE**  
WHEELS-MOUNTED POINTS, Etc.

ASSURED Quality, Perfect Balance and Resilience in Abrasive Grinding Wheels, Points, Segments, etc., plays an important part in to-day's precision engineering.

FOR OVER 40 YEARS  
Eliza Tinsley Pty. Ltd.  
Have been leading suppliers of Quality Abrasives

Distributors for:  
AUSTRALIAN ABRASIVES PTY. LTD.  
AUSTRALIAN DUREX PRODUCTS PTY. LTD.  
AUSTRALIAN DUREX COATED ABRASIVES, Etc.

**Eliza Tinsley**  
PTY. LTD.

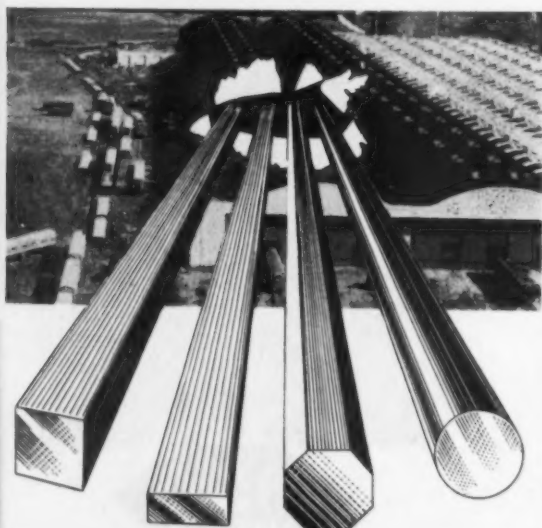
640-652 Bourke Street, Melbourne. MU 6531.

465 Kent Street, Sydney. M 4858.

Expert TECHNICAL ADVICE available from a Specialist Staff

**\*\*\* ABRASIVE SPECIALISTS for OVER 40 YEARS \*\*\***





## BRIGHT STEELS

AVAILABLE FROM A LEADING ENGLISH MILL

BRIGHT DRAWN STEEL BARS • HEXAGONS, FLATS,  
SQUARES AND ROUNDS • BOLTS • NUTS • STUDS •

STAINLESS STEEL SHEETS

The Famous  
"SINTRONIC"  
TUNGSTEN CARBIDE TOOLS  
AND TIPS  
"SINTRONIC" ROCK DRILLS

DIAMOND-TIPPED TOOLS  
INDUSTRIAL DIAMONDS  
DIAMOND POWDERS

We Solicit Your Enquiries

### EMM. YANNOULATOS



BULLS CHAMBERS  
26 MARTIN PLACE, SYDNEY  
Phone: BW 2961 (3 lines)  
Tgms: "Yannoulatos," Sydney

BEEHIVE BUILDING  
94 ELIZABETH ST., MELB.  
Phone: Central 4496  
Tgms: "Yannoulatos," Melb.

## COMMUTATORS

FOR REPLACEMENT &  
EQUIPMENT PURPOSES



Incorporating highest quality materials and workmanship, Wernard Commutators are available in sizes ranging from 3 to 300 segments. Suitable for high-speed motors from the smallest fractional h.p. units up to those rating 100 h.p. and also for starters, generators and rectifiers.

J. WERNARD & CO. 80 PARRAMATTA ROAD, STANMORE, N.S.W. LA 3836.  
AGENTS: J. H. WILKINSON, 289 Flinders Lane, Melbourne. Cent. 1800.  
ELECTRICAL REPAIR CO. PTY. LTD., 89 Elizabeth Street, Brisbane, Qld. B 0187.

(Continued from page 58.)  
up to temperature, or by preplacement within or adjacent to the joint itself. The other portion of the fifth fundamental, the application of heat, can be accomplished in a number of ways. Any medium which will heat the joint to the flow temperature of the brazing alloy can be used for silver brazing. Some discretion should be used in the selection of heating methods as the design or components of a part would indicate.

"Final cleaning," sixth fundamental, is usually accomplished by immersing the brazed part in hot water at the completion of the cooling cycle. When the part has cooled to the point where the alloy has solidified, if immersed in water, the flux will either dissolve or flake off the joint area. Attention must be given to the design of the part, in determining the temperature at which to quench for flux removal. The low strength of the alloy at elevated temperatures may preclude any extensive handling of the brazed assembly until the joint has been cooled below 500 F. Normally, hot water should be sufficient for flux removal but in cases of over-heating, which will develop excessive oxide, the flux may become so hard and adherent that the steam generated by the process described above, will be necessary for its removal.

#### PRE-CLEANING.

Any suitable cleaning agent to remove oil and grease, will answer the normal pre-cleaning requirement. Where excess scale and rust or other surface oxidation exists on the metal to be brazed, mechanical cleaning by abrasion or a pickling operation will be necessary.

#### FLUXING METHODS.

Almost any method conceivable by the mind of man consistent with the operation to be performed, is satisfactory for flux application. Perhaps the most common are: (1) the use of a small paint brush, and (2) dip fluxing. Other methods used in high production operations are: (1) Dropping from an oil can; (2) Dropping from a stick; (3) Passing between coated rolls.

#### BRAZING METHODS.

The most commonly used heating method for brazing is the torch. Various gases or a combination of them are used in torches, e.g., city gas-air, oxy-acetylene, oxy-city

gas, acetylene-air, propane-air, and oxy-propane. Although the hand torch is the method in widest use, frequently the torch is rigidly installed for high production in conjunction with a conveying method to provide the speed of operations. Without regard to the order of importance of their usage, some other heating methods are: furnace, resistance, induction, incandescent carbon, dip brazing and salt-bath brazing.

#### DESIGN FOR BRAZED PARTS.

In designing for silver brazing, the six fundamental steps must be kept in mind. By careful reference and adherence to these fundamentals, the actual brazing operation can be reduced to a simple question of how to apply the heat. Castings, stampings, forgings, screw machine parts or spinings can be brazed to other parts of the same or dissimilar type by using the six fundamentals as designing aids.

Silver brazing alloys are free flowing at temperature, therefore, no finishing is necessary on properly made joints. Capillary force pulls the alloy into the joint area leaving little or no fillet for subsequent finishing. The economy effected at this point alone can more than equal the material cost.

#### AVAILABLE FORMS.

Silver brazing alloys can be purchased in a variety of rod and wire shapes, as well as sheet, strip, powder form. Perhaps the biggest variety in form is noticeable in the shapes of preplaced alloy. Here either wire or shim stock is fabricated to meet a specific joint requirement.

"Hard Soldering" has been widely used by Jewellery and silver craftsmen for many years. Now it is an accepted industrial joining medium. Properly applied it offers many advantages.

## NEW FACTORY REGISTRATIONS

#### NEW SOUTH WALES.

Leoni Products, 45a 9th Avenue, Camperdown—Children's Wear.  
A. N. Williams Pty. Ltd., 230 Elizabeth Street, Sydney—Clothing.



W. York, 160 Darling Street,  
Newtown—Upholstery.

C. A. Bryant, Braid Road, Fern  
Bay, Nth. Stockton—Furniture.

J. Bullock, Cowper Street,  
Chatham, via Taree—Timber and  
Joinery.

T. Dunn & Sons, 115 Wynter  
Street, Taree—Joinery.

P. J. Farrell Pty. Ltd., 4 Mile  
Creek, East Maitland—Timber and  
Joinery.

S. E. Flanagan, 63 Tudor Street,  
Hamilton—Ladies' Clothing.

J. M. Morris, 16 Parkview  
Street, Waratah—Joinery.

K. Nelson & Sons Pty. Ltd., 69  
Pulteney Street, Taree—Joinery.

Curreeki Sawmill, Coolongolook  
—Timber and Joinery.

Norman G. Wood, Pacific High-  
way, Stroud—Timber and Joinery.

Barnett & Whitley, Stewart  
Street, West Dubbo—Joinery.

Berry & Rochester, Lower Peel  
Street, Bathurst—Timber and  
Joinery.

Richard Davis, Ellengerah  
Street, Naroomi—Joinery.

Honeysett & Evans, 1 Naomi  
Street, Lithgow—Clothing.

Allwells, Gidley Street, Molong  
—Welding.

Max Nicholson, 183 George  
Street, Bathurst—Upholstery.

Robinson Brown Pty. Ltd.,  
Elliott Road, Sth. Lismore—  
Joinery.

Sidney Hacking & Co., 83  
Keen Street, Lismore—Sheet  
Metalwork.

Tolhurst Bros. & McClay Pty.  
Ltd., Flagstaff Road, Unanderra—  
Fibrous Plaster.

W. J. Tresler, Nymagro  
Street, Narromine—Joinery.

Venn & Boon, Billy's Creek, via  
Sth. Grafton—Timber and Joinery.

White & Prince, 228 Bong Bong  
Street, Bowral—Wicker Furniture.

A. G. & L. Wicks, 110 Aurord  
Street, Temora—Joinery.

Moonee Creek Timber Co., Wool-  
goolga Road, Moonee Creek—  
Timber and Joinery.

#### VICTORIA.

Segal, M. & E., 119 Burke Road,  
Kew—Clothing.

Gunn, J., 120 Lygon Street,  
Brunswick—Hosiery.

Silverstein, L., 104 Lygon Street,  
Brunswick—Clothing.

Drouin Co-op. Butter Factory  
Co. Ltd., Cora Lynn—Cheese.

Peterken, R. J., 76 High Street,  
Westgarth—Clothing.

Ronson, James Pty. Ltd., Com-  
mercial Road, Lower Fern Tree  
Gully—Polishing Compounds.

Heywood, P. E., 14 Haig Street,  
Burwood—Engineering.

Rushford, E. & S., Lot 3, Bell  
Street, Preston—Engineering.

Toll, L. F. H., 45 Earl Street,  
Kew—Shoulder Pads.

Robb, A. S., 142 Plenty Road,  
Preston—Metal Spinning.

Sachs, E. & J., 557 Burwood  
Road, Hawthorn—Leathergoods.

Roderick, F. G., Baynes Street,  
Terang—Engineering.

Frycher, B. & F., rear 708 Syd-  
ney Road, Brunswick—Brush-  
ware.

Blackwood, A. R. & O., Koo-  
Wee-Rup Road, Pakenham South  
—Cement Tiles.

Fremder & Liberman, 123 Swan-  
ston Street, Melbourne—Gloves.

Kozma, M., 123 Swanston Street,  
Melbourne—Millinery.

MOTORS • GENERATORS



GRINDERS • BUFFERS

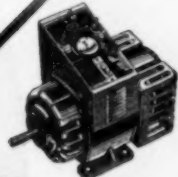
in the smaller ratings



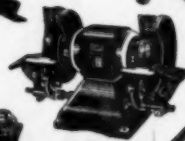
WHEEL GRINDING  
ATTACHMENT



GRINDING WHEEL  
GRINDER



GENERATOR  
300W—12V  
400W—24V  
Type MC214



1" DOUBLE TOOLREST  
GRINDER



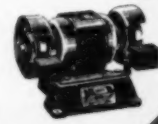
GENERATOR  
750W—24V Type D165  
1000W—24V Type D166



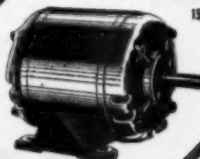
1" STANDARD  
GRINDER



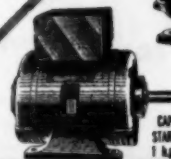
1500W—2400W GENERATOR  
TYPE G282



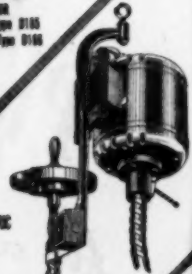
1" GRINDER



SPLIT PHASE MOTOR  
1/2, 1/4, and 1/8 h.p.



CAPACITOR  
START MOTOR  
1 h.p.—7 1/2 h.p.



FLEXELECTRIC

SUSPENSION TYPE



TRAILER TYPE



COLLECTING TRIPOL TYPE



BUFFER

1 h.p. Single Phase  
7 1/2 h.p. Three Phase  
2 h.p. Three Phase

Please address your interstate enquiries to—

QLD: Electrical Agencies, 104 Edward St., Brisbane.  
VIC. & TAS: Harold Beer, 364-372 Lonsdale St.,  
Melbourne, S.A.: R. A. Haynes, 20 Franklin St.,  
Adelaide, W.A.: Carlyle & Co. Ltd., 915 Hay St., Perth,  
and 397 Hannan St., Kalgoorlie (for all products); also  
Malloch Bros. Ltd., 52-54 William St., Perth (for  
generators only), N.S.W.: Grinders and Buffers—Paul  
Witzig & Co. Pty. Ltd., 55 York St., Sydney; Motors  
and Generators—Direct.

G. M. E. ELECTRIC MOTORS PTY. LTD.

30-32 LAYTON STREET, CAMPERDOWN, N.S.W. TEL: 131, 132, 133, 134, 135  
Telegrams and Cables: "GRINDER SERVICE"



# Piston Rings

for SUPER HEATED AND WET STEAM

DIESEL ENGINES AND ALL TYPES OF COMPRESSORS

COMPRESSION, OIL CONTROL AND DOUBLE SEAL  
RINGS FROM 6 in. TO 42 in. DIAMETER

## W. A. HARRINGTON PTY. LTD.

MARINE & INDUSTRIAL PISTON RINGS  
15 EAST STREET, LIDCOMBE, N.S.W.  
Cables: "Rington" Sydney

Sole Queensland Agents: Martin Wilson Bros. Pty. Ltd.  
399 Adelaide Street, Brisbane.

PIONEERS OF THE PISTON RING INDUSTRY IN AUSTRALIA, SUPPLIERS TO NAVY,  
SHIPPING COMPANIES, POWER HOUSES AND INDUSTRIAL PLANTS FOR OVER 25 YEARS.



Adroit Manfg. Pty. Ltd. 123  
Swanston Street, Melbourne—Dis-  
play Units.

Krawiec, S. & H., 87 Brunswick  
Street, Fitzroy—Clothing.  
Grant, L. & A., 124 Queensberry  
Street, Carlton—Clothing.  
Richardson, D., & Sons Pty.  
Ltd., Ballarat Road, Braybrook—  
Steel Fabricating.

### Industrial Companies and Firms

#### NEW SOUTH WALES.

SHAW, JOHN (MANUFACTUR-  
ING) PTY. LTD.—Capital: £50,000.  
Saw manufacturers. Subscribers:  
Henry Smallwood and Raymond  
K. Laurie. Registered Office: Syd-  
ney. (Lodged by Stephen, Jaques  
and Stephen, 7 Wynyard Street,  
Sydney.)

#### VICTORIA.

BORGES LAW CO. PTY.—  
Capital: £10,000 in £1 shares. Di-  
rectors: P. C. Law, S. J. Hender-  
son, F. L. Nelson.

CLAUDE BURKE & SON LTD.,  
Malvern Road, Heidelberg.—Cap-  
ital: £10,000 in £1 shares. Sub-  
scribers: A. C. M. Burke, V. N.  
Burke, R. W. E. Burke, J. M.  
Burke, J. C. Couzens.

LA VELL POTTERIES LTD.—  
Capital: £25,000 in £1 shares. Sub-  
scribers: E. Leticq, A. L. Leticq,  
J. S. Alexander, B. A. Blashki.

COLEMAN WILSON LTD.—  
Capital: £5,000. Subscribers: E. C.  
Coleman, I. H. Wilson, R. T.  
Jarrold.

MARCEL WORTH LTD., 271  
Lonsdale Street, Melbourne. Cap-  
ital: £25,000. Directors: F. J.  
Slutzkin, G. Slutzkin, G. Q.  
Slutzkin.

SIGMA ENGINEERING CO.  
LTD., 177 Jasper Road, Bent-  
leigh. Capital: £10,000. Sub-  
scribers: E. A. Jones, D. J.  
Jones, E. J. Glenn, G. E. Ful-  
ford, R. E. McCarthy.

SEAL TESTS LABORATORIES.  
Capital: £2,000, in £1 shares. Sub-  
scribers: G. A. Stephens, O.  
Lambmann.

APM FORESTS LTD.—Capital:  
£100,000, in £1 shares. Subscribers:  
C. S. Booth, G. W. Ellis, R. B.  
Jeffreys, J. G. Wilson, C. L.  
Steele.

### OUTPUT AT IRON KNOB NEAR RECORD.

Production of 2,349,804 tons of  
iron ore at Iron Knob last year  
was the second highest on record,  
the S.A. Director of Mines (Mr.  
S. B. Dickinson) says in a re-  
port released by the Minister of  
Mines (Mr. McEwin).

The record quantity of 2,570,989  
tons was produced in 1939.

Production this year may be a  
record, "provided there is no pro-  
longed coal strike to clog things  
up at the receiving end," it was  
stated.

It's good to hear of near-record  
production of the basic raw ma-  
terial of the steel industry, even  
if all else is not just as we might  
like to see it.





## 1<sup>st</sup> european machine-tool exhibition

Organised by the european committee of co-operation of machine-tool industries

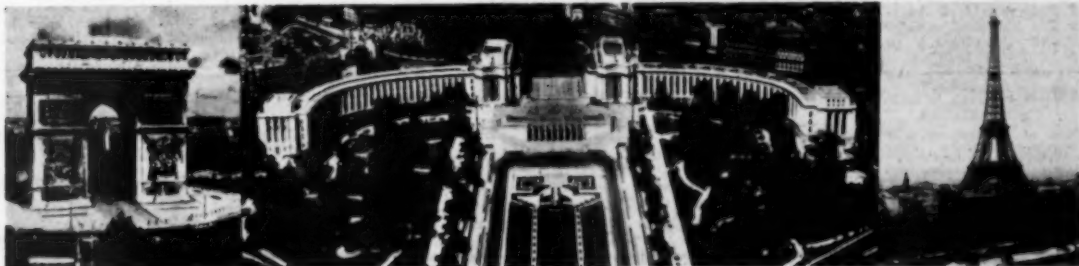
1-10 september 1951

# PARIS

Parc des Expositions - Porte de Versailles

More than 600 exponents belonging to 12 European and American Nations, over 2,000 machine-tools in working order. The 1951 European Machine-Tool Exhibition will afford to eventual buyers of the whole world an eminently suitable opportunity to compare and to choose in the course of a stay in Paris at a particularly pleasant period of the year, the equipment which will suit best to their needs, among the widest range of machines ever shown before.

For Information, Invitation Cards, Travelling and Hotel Reservation please write to : 1<sup>re</sup> EXPOSITION EUROPÉENNE DE LA MACHINE-OUTIL - 2 bis, rue de La Boume, Paris 8<sup>e</sup> - FRANCE







## THE MANLEY ELECTRIC ★ROTO-TRIMMER

Cuts any angle. Complete with 240V.-32V. transformer.  
Suitable also for use direct off 32V. batteries.

\* (Patent applied for)

Manufactured by:

**AMPLION (A'sia) Pty. Ltd.**

40 Parramatta Road, Camperdown, N.S.W.

Distributors in all States

ACCURATE READING



LONG LIFE UNDER  
SEVERE CONDITIONS

Gauges ...

## BUDENBERG

... Thermometers

- PRESSURE, VACUUM, HYDRAULIC AND RECORDING GAUGES
- INDICATING AND RECORDING THERMOMETERS

AVAILABLE NOW from INTERSTATE AGENTS

S.A.: E. Treiving & Son Ltd., Adelaide. W.A.: Atkins (W.A.) Ltd., Perth.  
Vic.: Geo. Kent (Victoria) Pty. Ltd., Melbourne. Tas.: Douglas & Fraser, Launceston.  
N.S.W.: H. G. Thornthwaite & Co., Sydney. Qld.: E. A. Andersen, Brisbane.



# PATENT & TRADE MARK NEWS

## PATENT SPECIFICATIONS ACCEPTED

### PRE-STRESSING REINFORCED CONCRETE PIPES.

138,771.—Roca Ltd.

A method of pre-stressing reinforced concrete pipes comprising first constructing an outer layer of the pipe wall, with the necessary steel reinforcement, embedded therein, and, when this outer layer has hardened adequately, applying an inner layer of concrete to build up the wall of the pipe to the required thickness, removing or relaxing the outer mould, applying pressure by an expandable core to the inner surface of the pipe before the concrete of said inner layer has hardened chemically to an appreciable degree maintaining this pressure until the concrete of said inner layer has hardened sufficiently to withstand the inward pressure

exerted by the tension of the reinforcement, and then relaxing this core pressure.

### PRESSURE ROLLER

#### APPARATUS.

138,782.—Stromberg-Carlson (Aust.) Pty. Ltd.

Improved pressure roller apparatus including a pair of rollers having substantially parallel spindles, driving means connected to the roller spindles for rotating them, supporting means normally maintaining the rollers in contact with one another and adapted to permit limited separation of the rollers without disconnecting the driving means therefrom and means for causing substantial separation of the rollers and simultaneously disconnecting the driving means therefrom.

### AERODROME GROUND LIGHTING

138,786.—The General Electric Company Limited.

A lighting fitting of the kind adapted to be placed on or in the ground as a contact taxi-track or

similar light for an airfield, comprising a housing for accommodating an electric lamp on a mounting and means arranged to transmit light from the lamp in the form of a beam, which means is rotatable around the lamp and about an axis to permit variation of the direction of the beam relative to the housing.

### FRICTION CLUTCH DISCS.

138,774.—E. B. Draper.

In friction facings having portions which are subjected to relatively greater wear and/or stress, more particularly spines or teeth on the external and/or internal edge of an annular friction facing, the provision of a strengthening member, more particularly wire or nylon cord or a strip of metal or other reinforcing material, following the contours of the teeth or spines, which member is incorporated at some stage of manufacture.

A method of manufacture of friction facings consisting in placing the strengthening member in a female die and causing a

moulding material to be pressed into the said member against the female die by means of a male die whereby the strengthening member becomes embedded in the moulding material following the contour of the female die.

### AERATION METHOD AND MACHINE.

138,780.—L. E. Booth.

An aeration machine, comprising a container for liquid; a pair of impellers rotatably mounted within the said container in mutually spaced relationship along a common substantially vertical axis, the upper of said impellers being of approximate disc formation, and the lower being adapted to cause circulation of liquid along the said common axis toward the said upper impeller; a well disposed above the said upper impeller and adapted to conduct air thereto, said well having an open lower end defined by a circumferential

## GRIFFITH, HASSEL & GRIFFITH

Established 1888

Fellows of the Institute of Patent Attorneys of Australia, Fellows of the Chartered Institute of Patent Agents, London.

Admission House

York and Barrack Streets, Sydney  
Tel.: BX 2548. Telegrams: "Myral"

PATENTS, TRADE MARKS AND  
REGISTERED DESIGNS

## PHILLIPS, ORMONDE, Le PLASTRIER & KELSON

ESTABLISHED A.D. 1888

CECIL Le PLASTRIER, GEOFFREY SLY, BERTRAM C. FITZPATRICK,  
TRADE MARK AGENTS — PATENT ATTORNEYS

PROVIDENT LIFE BLDG., 31-41 QUEEN ST., MELBOURNE

Telephone: MB 2194 (2 lines)

## Osborn F. Cartwright

PATENT AND TRADE MARK  
ATTORNEY

350 George Street, SYDNEY

Telephone: BL 1884

Fellow, Institute Patent Attorneys  
of Aust., Inc.



INDUSTRIAL FORK LIFT TRUCKS  
**STACATRUC**  
Up to 2½ tons LOAD. 9, 12, 14 ft. LIFTS.

For IMMEDIATE Inspection and Demonstration  
contact your State Distributors:

N.S.W.: Frank J. Hodgson Pty. Ltd., 35-41 Reynolds Street,  
Balmain. (WB 2443)  
Q'LD.: Messrs. Alfred Snashall, Anthon Pty. Ltd., 74-76  
Eagle Street, Brisbane, B.I. (B 3728)  
W.A.: Messrs. Wignomes Ltd., 613 Wellington Street,  
Perth. (BA 2281)

Sole Australian Representative:  
**LIBERTY MOTORS (AUST.) PTY. LTD.**  
Materials Handling Division,  
131-7 Lonendale Street, Melbourne (JM 1993)

lip which is substantially concentric with and spaced upwardly from the periphery of said upper impeller, thereby defining a laterally open, annular, aerating gap affording communication, without lateral obstruction, of the interior of said well with the interior of said container.

A method of froth flotation, comprising maintaining a mixing and circulation zone for a flotation pulp to be aerated; maintaining an aeration zone in limited overlapping adjacency to said mixing and circulation zone; causing the said pulp to be circulated within said mixing and circulating zone and into and through that portion thereof which is in overlapping relationship with said aeration zone; simultaneously introducing air or other gas into said aeration zone and circulating it into and through that portion thereof which is in overlapping relationship with said pulp mixing and circulating zone while allowing the said pulp and the air or other gas to intermingle and discharge laterally of the zone of overlap, directly and substantially without interference, whereby the said pulp is progressively aerated in relatively small quantities which have been first prepared for such aeration; removing the froth concentrate at a location or locations of said aeration zone which lie remote from the said overlapping portion thereof; and similarly removing the tailings from said mixing and circulation zone.

#### TOOL SETTING GAUGE. 138,788.—F. Starr.

A gauge or device, for facilitating the accurate setting of the tool of a milling machine or the like in relation to the work-piece to be operated upon by the said tool, such gauge or device being comprised by a block which is adapted to conveniently straddle the said workpiece (as for example a shaft) longitudinally of which shaft a keyway is to be cut) and an adjustable indicator or pointer associated with a graduated or calibrated part and associated with and slidably fitted in

relation to an upper surface or portion of the said block and in relation to a spirit level with precision bubble of known character which is fixedly fitted in relation to the said block.

#### SHEET METAL PISTON RING. 138,777.—Thompson Products, Inc.

A piston ring comprising a strip of resilient sheet material reversely folded longitudinally of itself thereby forming upper and lower sides of the ring which are separated and supported by a resilient web structure, said web structure comprising a reversely folded central portion of said resilient strip, said sides comprising segments separated by openings extending from the sides in overlapping relation.

#### HOE ATTACHMENT FOR GARDEN TRACTOR. 138,779.—A. G. Brown.

An improved hoe for use with a garden tractor, consisting of a lateral beam or bar, a curved shank associated therewith, a lateral cutting blade associated with the shank and an adjustable coupler associated with the beam or bar and located ahead of the blade.

#### DETACHABLE FLOORING FOR VEHICLES. 138,744.—A. Walsh.

A flooring platform superstructure for a road vehicle comprising a flooring support frame detachably connectable to the longitudinal chassis girders of the vehicle, the frame being subdivided transversely of the vehicle into a series of spaces provided with ledges, a series of flooring sections adapted to fit detachably into the spaces and be independently removable therefrom, and means for releasably securing the flooring sections in position.

#### DEVICE FOR DISPLAYING ARTICLES. 138,745.—L. Lempert.

A device for displaying and protecting articles and facilitating the selective removal thereof comprising a base with a spindle upstanding therefrom, a hood or

**GLOSCOAT**  
STRIPPABLE  
HOT DIP PROTECTIVE  
COATING



#### THIS TOUGH, MODERN, TRANSPARENT PACKAGING MEDIUM

provides an unrivalled rapid method for thoroughly protecting metal parts and the more simple assemblies against corrosion.

AN IDEAL TROPIC PROOFING MEDIUM, it has a vast usage in the packaging fields. Impervious to salt water and salt water vapour, it is the answer to the exporter's problem of suitable protection for goods in transit. It takes all hard knocks without damage to cutting or other points.

GLOSCOAT gives excellent protection in all conditions likely to be encountered, particularly in hot, humid atmosphere or in extremes of cold. Furthermore, the coating can be easily removed by a simple stripping operation, revealing the components ready for immediate use, lubricated with a film of pure lubricating oil, automatically exuded from the plastic coating.

FOR SPARE PARTS AND COMPONENTS STORAGE it is unique—no need to break open protective grease paper wrappings—part numbers are clearly visible through "Gloscoat".

Among the many users are establishments well known in the engineering and associated industries: Messrs. Gilbert, Lodge & Co. Ltd., Westcott, Hazell Engineering & Steel Ltd., Broken Hill Pty. Ltd., and many others.

The Royal Australian Navy and various Commonwealth Departments are using "Gloscoat" as the protective and storage medium for their equipment and spares.

In these days of high costs one of the most important features of Gloscoat is:

A QUICK DIP and the JOB'S DONE  
... and what is more the plastic can be used again and again.

- GLOSCOAT in one operation completely preserves and protects.
- GLOSCOAT is easy to apply and simple to remove.
- GLOSCOAT eliminates preservatives and desiccants.
- GLOSCOAT reduces bulk of packed articles, an important consideration if transmitted by air freight. Parts coated are ready for immediate use when received, as no degreasing is necessary.

Why not cover your product with this Modern Protection and Sales Help? Enquiries to:

**British Optical Co. Pty. Ltd.**  
Wingello House, Angel Place, Sydney. Tel.: BL 1344.



RUBBERISED AND STITCHED  
LIGHT WEIGHT CANVAS

## CONVEYOR BELTS

UP TO 12in. WIDTH  
FLEXIBLE HIGH QUALITY

## QUICK DELIVERY

## V-ee BELTS

IN ALL SIZES  
AND MATCHED SETS  
FOR IMMEDIATE  
DELIVERY



**Powergrip  
ENDLESS  
WOVEN  
BELTS**

## Only ENDLESS WOVEN BELTS

ARE GENUINELY ENDLESS

MADE IN

## FLAT & ROUND

SECTION  
AND ALL SIZES

PRESTRETCHED  
OIL RESISTANT

- NO VIBRATION
- NO SLIP
- NO FASTENERS

## POWER GRIP WOVEN BELT CO.

276-278 CANTERBURY ROAD  
SURREY HILLS  
VICTORIA

TELEGRAMS: "POWERBELT," MELBOURNE.

TELEPHONE: WF 2598.

## SPEED UP DESPATCH AT LOWER COSTS!

The Andell, Reid Gravity and Power Roller Conveyor is rugged in design and precision built for years of trouble-free service. Consult our Engineers for practical suggestions and estimates. Layouts to suit any requirement.



\* Power Roller Conveyor recommended where suitable slope is not available.

FULL  
INFORMATION  
FROM

**ANDELL,  
REID PTY. LTD.**

**INDUSTRIAL ENGINEERS**

JA 3682

340 JOHNSTON STREET, ABBOTSFORD,  
N.9, VICTORIA

cover mounted at a suitable height on the spindle, a disc like part with division pieces beneath the hood radiating from the spindle supported by the base and free to revolve upon the spindle, the hood or cover having a gap therein of a width corresponding to the width between two division pieces adjacent to the inner periphery of the hood or cover and a displaceable closure for said gap, the disc being a close fit to the hood or cover to prevent insects getting inside the hood.

### JUNCTION BOXES.

138,747.—Peto Scott Electrical Instruments Ltd.

A connecting box for an electric wiring system, said box being made of pressed sheet metal and provided in its sides with a number of "knock-out" holes, in combination with a ferrule shaped at one end to enter said holes and at the other to fit wiring conduit, the ferrule at the end which is shaped to enter the holes in the box being thin enough to be readily expanded over the interior of the box to hold the ferrule in place and to provide a smooth lead-in for wiring.

An anvil for use in swaging ferrules into connecting boxes in the manner set forth, comprising a base, an overhanging anvil portion small enough to enter a junction box and having a recess in its upper face, and a swage block in the recess, the upper face being at such a height relative to the swage block in the recess as to

support the interior of the box while allowing the ferrule to be expanded in the swaging block.

### TANG SELF-LOCKING NUT.

138,749.—H. O. Engstrom.

A self-locking nut having an axial bore therethrough and a thread therein, and a locking section formed in the end portion thereof and including a tang consisting of a sheared portion of the nut effected by shearing through the nut body longitudinally thereof at spaced radial planes from the end of the nut to a point intermediate the ends of the nut, the tang having a thread on the inner surface thereof and being inwardly pressed to position the thread on the inner surface thereof of radially inwardly beyond the normal diameter of the thread of the nut, whereby the tang resiliently engages the thread of a bolt entered through the nut in frictional contact therewith.

### SHAFT SEALING APPARATUS.

138,759.—Crane Packing Co.

A sealing apparatus comprising a sleeve of resilient compressible material such as synthetic rubber possessing the characteristic of adhering to metal when pressed against the metal for substantial periods of time, a metal element in the sleeve, said sleeve having annular ends and an intermediate region having at least one fold, means for fixing one end of the sleeve axially and for extending the other end relative to the fixed end, whereby to make necessary



an axial movement of the fold, and an independent annular member intermediate the metal element and fold extending radially inward beyond the innermost point of the sleeve to keep the fold spaced from the metal element and thus prevent said fold from adhering to the metal element and to ensure freedom of movement to the fold.

**PROVIDING DESIGNS ON THERMOPLASTIC SHEETS.**  
138,761.—L. Bado.

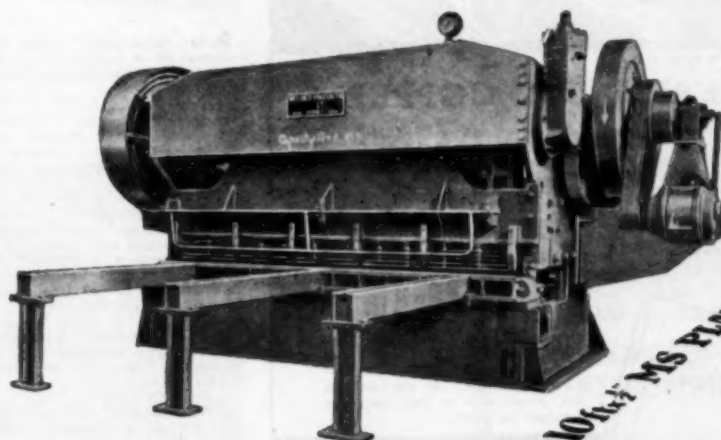
A process for producing pliable elastic sheets or films made from a thermoplastic substance such as vinyl resin, in particular of polyvinyl chloride, with designs, wherein the pliable elastic sheet is laid between two non-thermoplastic media of which at least one is pliable and is provided with a design which contacts the pliable elastic sheet, and wherein heat and pressure are applied through the design carrier to the pliable elastic sheet lying between the two media, which thereby becomes plastic, the design being transferred from the carrier to the hot plastic sheet which, after cooling between and with the two media, regains its elasticity and thereafter at least the sheet which served as the design carrier is removed therefrom.

**CONTACTING GAS WITH LIQUID.**

138,764.—The Commonwealth Industrial Gases Ltd.

Means for contacting a gas with a liquid comprising a plurality of cells mounted to form a column having at the lower end an inlet for the gas to be treated and at the upper end, as outlet for the treated gas, each said cell comprising a lower gas-liquid contacting zone and an upper gas-liquid disengaging zone, with an impervious septum between said two zones, said contacting zone including a tray for the retention of a layer of the liquid in spaced relationship to said septum to afford a gas space between the liquid and the septum, a riser for conducting liquid entrained gas from the contacting zone to the disengaging zone, said riser having gas dispersing means for causing intimate contact between the gas and the liquid and the entrainment of liquid particles in the gas stream prior to entry into the riser, a re-circulation down-take for the return the contacting zone of liquid deposited in said disengaging zone, a liquid duct for conveying liquid to the cell below, and sealing means for establishing a weir about the upper end of the duct whereby free communication can be maintained between the inlet to the duct and the disengaging zone whilst isolating the inlet from the gas space of the contacting zone.

**SPECIAL NOTICE TO READERS**  
To receive prompt attention,  
address all inquiries to Box  
1097, G.P.O., Sydney.



**CUT THREE WAYS**  
*Simultaneously*  
**WITH THIS ALL-STEEL**  
**GUILLOTINE**

**CUT-COSTS, CUT TIME AND 100% MS PLATE**

*Features*—Rigid back pressure beam, which supercedes the conventional fish back cutting beam. Self-contained hydraulic hold-down system. Pneumatically controlled multiple disc friction clutch and interlocked automatic brake. Screw operated self-freeing back gauge. Patent plate splitting device enabling plate of any length to be split in widths up to the maximum depth of the gap.

★ Above—Welded Products' all steel guillotine shears, capacity 10' x 1" M.S. plate.

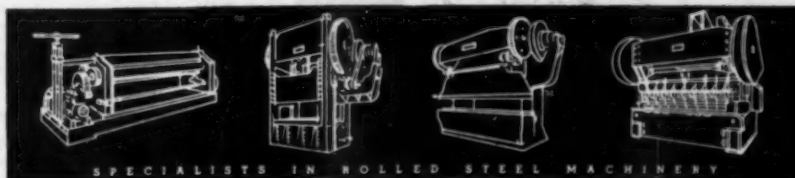
Cutting three ways simultaneously isn't a new trick—on a Welded Products' guillotine. Metal working plants, all over Australia and overseas, are doing it every day—cutting costs, cutting time, in cutting mild steel. These plants save interruptions to guillotine production through less time out for blade regrinding and renewals.

This is only one side of the cost-saving advantages of rigid rolled steel construction—you also get faster operation . . . more accurate, clean-cut work . . . reduced maintenance charges.

Exceptional blade life, rapidity, precision, low maintenance —any one of these will help reduce expenses, but combined they will make for worth-while savings in production costs per unit of output.

**Welded Products Limited**

94-96 O'RIORDAN ST., ALEXANDRIA, N.S.W., AUSTRALIA  
Phone: MU 2401 (3 lines). Telegrams & Cables: "Welprod Sydney"



SPECIALISTS IN ROLLED STEEL MACHINERY

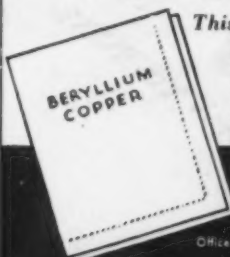




## MALLORY 73 BERYLLIUM COPPER

High Tensile Strength — Great Hardness — Good Electrical Conductivity — Resistance to Corrosion — Beryllium Copper offers an exceptional combination of Electrical and Physical properties — its resistance to wear and abrasion and freedom from atmospheric corrosion are valuable for application to a wide range of precision machinery.

Available on indent orders from our Associate London House as sheet, strip and wire in a wide range of tempers; also in rod, tube, precision rolled hair spring strip and silver faced contact bi-metal strip. Further particulars on application.



*This manual free on request.*

A limited number of these manuals on "Beryllium Copper, its Properties and Applications," are available for Australian circulation. If you desire a copy, please write on your company's letterhead for same.

**GARRETT, DAVIDSON  
& MATTHEY PTY. LTD.**

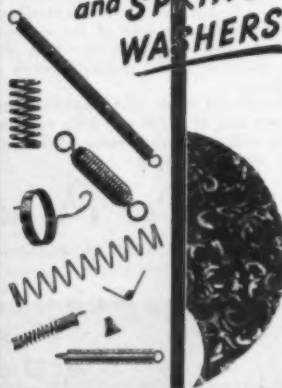
Offices: 824 George St., Sydney — MA 441-2  
Works: Surry Hills & Chippendale, N.S.W. FAS 145

Associate London House: JOHNSON MATTHEY & Co. Ltd. Hutton Garden.

**F.R.S.**  
IDEAL SPRING CO. LTD.



**SPRINGS  
and SPRING  
WASHERS**



**F.R.S. IDEAL SPRING CO. LTD.**

WORKS: Sydney: 148-152 Parramatta Road, Camperdown, LA 2784-5.  
Melbourne: 44 Oxford Street, Collingwood, N.5, JA 1115-6.

AGENTS: Queensland: Warren & Strang (Q'land) Ltd., Brisbane.  
South Australia: A. A. Maxwell & Sons, Adelaide.  
Western Australia: A. Parkinson & Co., Perth.

## TRADE MARK APPLICATIONS

95,769. "Enameltile." Metal tile.  
—Robertson & Lansley Pty. Ltd.,  
Moore and White Streets, Leich-  
hardt, N.S.W.

97,695. "Stovemaster." Cooking  
stoves.—The Sears Heating and  
Ventilating Coy. Pty. Limited, 33  
Grose Street, Camperdown, Syd-  
ney, N.S.W.

96,407. "Sampanol." Paint,  
enamel, varnish, paint lacquers,  
stains, thinners for paints, thin-  
ners for lacquers, polish and pre-  
pared oils.—Wright Varnish Com-  
pany Limited, 121-139 John Street,  
New Hindmarsh, South Aust.

96,021. "Spottiban." Detergents.  
—Fleischmann Chemical Co. 100  
Willoughby Road, Crow's Nest,  
N.S.W.

96,761. "Kollag." Colloidal gra-  
phite for use as a lubricant, lubri-  
cating oils and greases and com-  
pounds, fuel oils and spirits.—S.  
W. Peterson & Company Pty.  
Limited, Nelson and Albion  
Streets, Annandale, Sydney,  
N.S.W.

96,032. "Flexment." Anti-  
corrosive jointing paste, for steam  
pipes.—Kelsey Industries Limited,  
Mellier House, Albemarle Street,  
London, W.1, England.

96,228. "Densifiber." Kraft  
paper in ply form densified by the  
application of plastic and/or res-  
inous materials, and all other  
fibrous materials similarly treat-  
ed.—Plyfiber Limited, 58 Margaret  
Street, Sydney, N.S.W.

98,246. "Magiccolour." Paints  
and enamels.—Alexander, Fergus-  
son Proprietary Limited, 304-310  
Lonsdale Street, Melbourne, Vic-  
toria.

98,000. "Avarc." Hand bel-  
lows-operated spraying devices.—  
C. R. Averill Ltd., 22 Duchy  
Street, London, S.E.1, England.

96,196. "Anavenol." Chemical  
substances used for veterinary and  
sanitary purposes. — Imperial  
Chemical (Pharmaceuticals)  
Limited, Wexham Road, Slough,  
Buckinghamshire, England.

96,214. "Fyrethex." Insecti-  
cides, disinfectants, germicides,  
larvacides and fungicides.—The  
Strawson Chemical Company  
Limited, 79 Queen Victoria Street,  
London, England.

97,368.—"Spergen." A material  
to be used in the pickling of  
"seed pickle." — Lane's Pty.  
Limited, 69 Abercrombie Street,  
Sydney, N.S.W.

97,451. "Sorex." Preparations  
for destroying vermin.—Ward  
Blenkinsop & Company Limited, 6  
Henrietta Place, London, W., Eng-  
land.

**SD SOLUBLE  
SILICATES**  
of Soda Potash  
True to Specification.

Silicate & Dolomite Co. of Aust.  
Pty. Ltd.  
ALLEN STREET,  
PYRMONT, N.S.W.

98,242. "Spersul." Chemical  
substances used for agricultural,  
horticultural and sanitary pur-  
poses.—Plant Protection Limited,  
Yalding, Kent, England.

98,306. "Boradom." Prepara-  
tion for borer and white ant pre-  
vention in timbers.—Phantomyst  
Fumigation Services Pty. Ltd., 195  
Inkerman Street, St. Kilda, Vic-  
toria.

97,995. "Pilovic." Synthetic  
polyvinyl chloride resins.—The  
Goodyear Tyre & Rubber Com-  
pany, 1144 East Market Street,  
Akron, Ohio, U.S.A.

98,374. "Graphseal." A jointing,  
sealing and anti-corrosive com-  
pound.—British Graphite Com-  
pany, 2a Naples Road, Mentone,  
Victoria.

## LIGHTBURN'S EXPAND.

Lightburn & Co. Limited,  
engineers, of Adelaide, has re-  
ceived Treasury consent to the  
issue of a further 200,000 £1 ordi-  
nary shares.

The new money was required in  
order to carry out certain defence  
projects, and at the same time ex-  
pand normal output to meet the  
backlog of orders existing in all  
divisions. Mr. D. Cooper (secr-  
etary) said.

Main expansion would be at  
the Camden (S.A.) works, but  
interstate activities would also  
participate.

## TENDERS FOR PATENTS

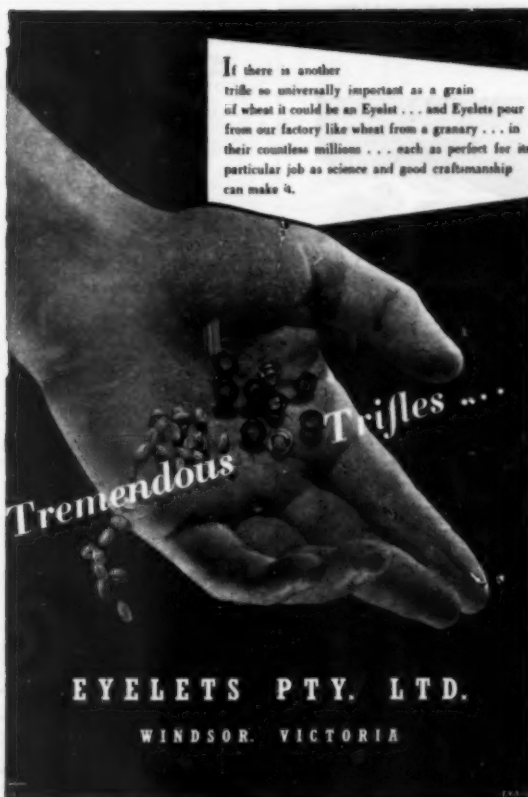
NOTICE is hereby given that  
the proprietors of Australian  
Patent No. 125,273, dated April 13,  
1945, for "Improvements in Strain-  
ing or Filtering Apparatus for  
Liquids," are prepared, under the  
provisions of The Patents Act,  
1903-1946, to satisfy any demand  
and all requirements of the public  
respecting the said invention.

Full particulars from  
**P. M. NEWTON & SON, Patent  
Attorneys,** 405-7 Collins Street,  
Melbourne.

"SCREW-PROPELLER."  
NOTICE is hereby given that  
the owner of Australian Letters  
Patent No. 125,696, dated the 19th  
March, 1945, is desirous of dis-  
posing of his rights in this inven-  
tion by way of licence.  
Further particulars will be sup-  
plied on application to

**DAVIES & COLLISON, Fellows  
of the Institute of Patent Attor-  
neys of Australia,** Temple Court,  
422 Collins Street, Melbourne, C.1.





If there is another trifle so universally important as a grain of wheat it could be an Eyelet . . . and Eyelets pour from our factory like wheat from a granary . . . in their countless millions . . . each as perfect for its particular job as science and good craftsmanship can make it.

**EYELETS PTY. LTD.**  
WINDSOR, VICTORIA

#### PRODUCTION OF HOT PRESSINGS.

A modern factory is being erected at Mitcham, Victoria, by Luke and Singer Pty. Ltd., a new Company with an authorised capital of £250,000. Production of hot pressings in brass, bronze and copper will be undertaken. The company is also operating a factory in North Fitzroy. Mr. K. G. Luke is Managing Director.

#### SCAMMELL TRUCK BODIES.

The appointment of the Tutt-Bryant organisation as distributors for Scammell lorries, for N.S.W., Victoria, Tasmania and Western Australia was announced recently. Tutt-Bryant have undertaken the manufacture of the bodies in Australia.

The range will cover vehicles capable of handling from 10 to 100-ton loads.

### ELECTRO-TIN PLATING

OUR Plating Department can quote you for your requirements in Electro-tin Plating of any desired thickness. Our modern equipment has a capacity of up to 36 square feet of plated surface and we specialise in the plating of tubing inside and out up to 10 feet in length. For further particulars and quotes, phone Mr. Yeomans, FW 5167.

**GORDON BROS. PTY. LIMITED**  
120 UNION STREET, BRUNSWICK, N.10.



### METEOROLOGICAL INSTRUMENTS

such as:  
Rainfall Recorders (illustrated)  
Barometers & Barographs  
Thermo-hygrographs  
Anemometers & Air Meters  
Hygrometers & Hygrographs  
Thermometers

made by  
**C. F. CASSELLA & CO., LONDON**  
*Obtainable from leading scientific supply houses,*

### ANDREW THOM LIMITED

**Athom House,**  
**261 Broadway, SYDNEY**

#### DUTY ON FISH OILS.

The Minister for Trade and Customs has referred the following question to the Tariff Board for inquiry and report in accordance with the Tariff Board Act, 1921-1950, viz.:—

Fish Oils: What rates of duty should be imposed on fish oils at

present charged with duty under Tariff Items 228(A)(2), 229(I), 229(J), 230(B), 281(L) and 449(A)(2).

The term "fish oils" is not to be interpreted to include whale oil and seal oil.

This matter will form the subject of a public inquiry by the Board at a later date.

### PRESS TOOLS

FOR

SHEET METAL STAMPING  
PLASTICS, CERAMICS, Etc.

### JIGS & FIXTURES

Consult us with your Tooling and Production Problems

**ROBERTSON & LANSLEY PTY. LTD.**  
Moore and White Sts., Leichhardt, N.S.W. 'Phone: LM 3552.

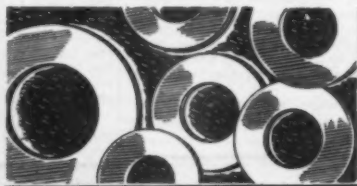




## WORKS OF ART ... FOR THE ENGINEERING TRADE

A gallery of celebrities well known to every engineer, these Sidney Cooke metal thread screws - in countersunk, round heads and cheese heads - are coming through slowly but surely.

It's well worth your while waiting for the day when "S.C." metal thread screws are coming through in sufficient quantities to meet ALL your requirements!



BRASS WASHERS IN STOCK SIZES  
from  $\frac{3}{8}$ " x  $\frac{1}{8}$ " x 21G. to  $2\frac{1}{2}$ " x 1" x 14G.

NP3

**SIDNEY COOKE (United Nail) Pty. Ltd.**  
34 McEVoy ST., WATERLOO, SYDNEY

Head Office: GAMBLE STREET, EAST BRUNSWICK, N.11, VICTORIA

### TENDERS FOR PATENTS

#### "REMOVING FIBRE WEBS FROM SMOOTH ROLLERS."

NOTICE is hereby given that the owner of Australian Letters Patent No. 137,489, dated the 28th February, 1946, is desirous of disposing of his rights in this invention by way of licence or otherwise.

Further particulars will be supplied on application to

**DAVIES & COLLISON, Fellows of the Institute of Patent Attorneys of Australia, Temple Court, 422 Collins Street, Melbourne, C.I.**

#### "MIXING LIQUID WITH FIBROUS MATERIAL."

NOTICE is hereby given that the owners of Australian Letters Patent No. 126,540, dated the 31st January, 1944, are desirous of disposing of their rights in this invention by way of licence or otherwise.

Further particulars will be supplied on application to

**DAVIES & COLLISON, Fellows of the Institute of Patent Attorneys of Australia, Temple Court, 422 Collins Street, Melbourne, C.I.**

THE PROPRIETOR of Australian Letters Patent No. 117,795, dated 17th June, 1942, relating to "Straight Bar Knitting Machines," is prepared to meet trade and public requirements for this invention, pursuant to Part V of the Australian Patents Act.

Further particulars are obtainable from

**EDWD. WATERS & SONS, Patent Attorneys, of 11-13 Castle-reagh Street, Sydney, and 422-428 Collins Street, Melbourne.**

THE PROPRIETOR of Australian Letters Patent No. 117,794, dated 17th June, 1942, relating to "Straight Bar Knitting Machines," is prepared to meet trade and public requirements for this invention, pursuant to Part V of the Australian Patents Act.

Further particulars are obtainable from

**EDWD. WATERS & SONS, Patent Attorneys, of 11-13 Castle-reagh Street, Sydney, and 422-428 Collins Street, Melbourne.**

THE PROPRIETOR of Australian Letters Patent No. 118,888, dated 29th January, 1943, relating to "Straight Bar Knitting Machines," is prepared to meet trade and public requirements for this invention, pursuant to Part V of the Australian Patents Act.

Further particulars are obtainable from

**EDWD. WATERS & SONS, Patent Attorneys, of 11-13 Castle-reagh Street, Sydney, and 422-428 Collins Street, Melbourne.**

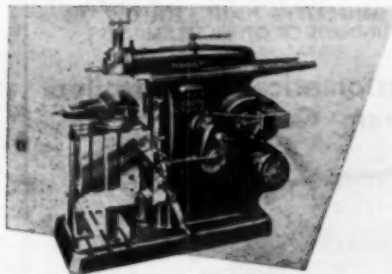
THE PROPRIETOR of Australian Letters Patent No. 127,046, dated 5th June, 1945, relating to "Pressure Application in Presses," is prepared to meet trade and public requirements for this invention, pursuant to Part V of the Australian Patents Act.

Further particulars are obtainable from

**EDWD. WATERS & SONS, Patent Attorneys, of 11-13 Castle-reagh Street, Sydney, and 422-428 Collins Street, Melbourne.**



## RAPID RUGGED RELIABLE



The improved Invicta Shaping Machines feature: Centralised Controls; 6-Speed Totally Enclosed Gear Box; Manganese, Chrome, Molybdenum, Steel Gears; Helical-cut Bull Wheel; Wide Front and Ram Slides. Optional equipment includes Automatic Downfeed and Swivelling Table.



High Speed 10ft., 14ft. 18ft., 21ft., 24ft. and 30ft. Shaping Machines

Obtainable from:

VICTORIA: FRANK VIAL & SONS PTY. LTD.  
369 Queen Street, Melbourne. FJ 1658-9.  
N.S.W.: CLEVELAND MACHINERY CO. PTY. LTD.  
195 Cleveland Street, Redfern. MX 3594.  
S.A.: LAPHORNES LTD.  
232 Victoria Square, Adelaide. C 4457.

PV-18-NHP

# ACCEPTED TENDERS

## COMMONWEALTH

### POSTMASTER-GENERAL'S DEPARTMENT.

Underground Cable, small sizes (C.5599/12,473). Austral Standard Cables Pty. Ltd., £368/16/6.

Insulators (C.5999/14,533). Noyes Bros. (Melb.) Ltd., £665/8/9.

Switchboard Parts and Accessories (C.6111/14,951). Ericsson's Telephone Ltd., £202/18/4.

Switchboard Parts and Accessories (C.6111/14,952). British Automatic Telephone & Electric Co. Ltd., £597/18/3.

Wind-driven Electric Generators (C.6200/14,981). Dunlitt Electrical Co. Ltd., £1,815.

Cable, Switchboard, Lead-covered (C.6012/15,037). Enfield Cables (Aust.) Pty. Ltd., £16,296/12/7.

Handcarts and Trucks (C.6267/15,387). Progress Engineering Co. Pty. Ltd., £20,210.

Coach Screws (C.6221/15,414). Golling & Co. Pty. Ltd., £4,618.

Outdoor Distributing Wire (C.6230/15,437). A.P.I. Cables and Insulation Pty. Ltd., £479/16/8.

Cable, Underground, large sizes (C.6334/15,466). Austral Standard Cables Pty. Ltd., £534,634/2/-.

Portable Water Pump Units (C.6307/15,541). McPherson's Ltd., £466.

Portable Water Pump Units (C.6307/15,542). Cameron & Sutherland Ltd., £849.

File Covers (C.6333/15,594). C. E. Clayton Associates, 1974/9/7.

Stay Rods (C.6306/15,704-7). David Shearer Ltd., £5,358/14/2; Port Adelaide Implement Works Ltd., £10,077/7/2; Webb Industries Ltd., £17,356/5/-; and McPherson's Ltd., £204/9/9.

Tools, Leadworking (C.6246/15,719). Temmah Products (Aust.) Pty. Ltd., £352/3/-.

Jacks and Number Plates (C.6359/15,746). Transmission Products Pty. Ltd., £15,500/0/10.

Morkrum Printer Parts (C.6285/15,766). Standard Telephones & Cables Pty. Ltd., £21,664/62.

Mechanically Operated Spring-sets (C.6323/15,778). British General Electric Co. Pty. Ltd., £4,081/7/11.

Mechanically Operated Spring-sets (C.6323/15,779). British Automatic Telephone & Electric Co. Pty. Ltd., £4,078/16/11.

Batteries, for Motor Vehicles (C.6403/15,793, 4, 5, 7, 8, 9, 800, 801, 2, 3, 4). Masse Batteries Pty. Ltd., Geo. L. Thompson Pty. Ltd., Masse Batteries (Vic.) Pty. Ltd., Clyde Sales, Blende Batteries, Clyde Sales, Loxite Ltd., Allan Campbell Pty. Ltd., Dunlop Rub-

ber (Aust.) Ltd., Homecrafts Pty. Ltd., C.C. Boag. Rates.

Synthetic Enamels and Paints (C.6402/15,808, 7, 8, 51). Lewis Berger & Sons (Aust.) Pty. Ltd., Spartan Paints Pty. Ltd., Taubman's Ltd. Rates.

Lineman's Wiring and Jointing Tools (C.6377/15,823-27). McPherson's Ltd., £203/2/6; Progress Engineering Co. Pty. Ltd., £6,266/15/-; N. P. Nielsen & Co., £902/15/-; Marine Spares, £1,572/10/-; M.S. Telcom Products Ltd., £4,686/5/-.

Coach Screws (C.6221/15,834). Walker M. Jacobson, £1,122/18/9. Pins and Sockets, for Portable

## IMPORTED STEEL

SHEETS (Deep Drawing, Bk., Gal.)  
M.S. AND BOILER PLATE  
JOISTS, CHANNELS, ANGLES  
REINFORCING RODS  
PIPING (Bk. and Gal.)  
BRIGHT STEEL SHAFTING  
WIRE & WIRE NETTING  
ASBESTOS CEMENT SHEETS & PIPING  
REFINED PIG IRON

Standard sizes and gauges can be offered for early shipment from overseas

PRICES REASONABLE

ENQUIRIES INVITED

**Hurley & Dewhurst Pty. Limited**

WINGELLO HOUSE, ANGEL PLACE, SYDNEY, N.S.W.

Telegrams: "DEWLEY," Sydney

Phone: BL 2963



THE MOST MODERN — ECONOMICAL — EFFICIENT —  
RELIABLE STEAM GENERATING PLANT. FOLLOW THE  
EXAMPLE OF HUNDREDS OF OTHER STEAM USERS,  
INSTALL A

## "Presha" Automatically Controlled Steam Generator



THE "PRESHA"  
(Automatically Controlled Steam Generator)

The original and only "PRESHA" — covered by world patents, hundreds in constant use in Australia and overseas. Large and small steam users, your steam requirements of any capacity supplied — fitted with the "PRESHA" patent automatically controlled modulating fuel oil burner using diesel or bunker fuel oil — a full head of steam in five minutes — efficiency guaranteed 80% — entirely automatic in operation — unlike a steam boiler, there is no danger risk — a "PRESHA" steam generator cannot explode — entirely an Australian invention made in Australia by Australian engineers using all Australian materials and equipment.

Write at once for illustrated Brochure.

Just a Few of Our Many Recent Orders:

BOVRIL LIMITED, England, 8-100 H.P. Generators, total 800 H.P., for their new works on the Katherine River, North Australia.  
The COMMONWEALTH WHALING COMMISSION, 4-100 H.P. Generators, total 400 H.P., for the Whaling Station, Carnarvon, Western Australia.  
The NATIONAL UNIVERSITY, CANBERRA, 4 Generators.  
NUFFIELD ORGANISATION, SYDNEY, 4 Generators.

Ask for a list of users. Get their opinion, there is no better recommendation.  
"PRESHA" Steam Generators are manufactured by

## PRESHA ENGINEERING CO. PROPRIETARY LIMITED

In their factories in each State of the Commonwealth:

South Melb. Victoria: City Road, Head Office	Sydney, N.S.W.: Boisay Road Waterloo	Adelaide, South Aust.: Gibson St. Bowden	Brisbane, Queensland: Charlotte St.	Perth, West Aust.: Wellington St.
---	---	---	---	---

Overseas Enquiries Handled by

PRESHA OVERSEAS (Corporation) Pty. Ltd., 1 Bent Street, Sydney.

## Industrial Minerals and Siliceous Abrasives

Laboratory Standardised,  
Ground and Processed to  
Specification by

**Austral Rock Milling  
Pty. Ltd.**

GLADSTONE STREET  
NEWTON, N.S.W.  
Phone: LA 2502

## FACTORY EQUIPMENT

"BURNER" Lathe Chucks  
"MERCE" Dial and Cylinder  
Gauges

"DING DONG" Hackaw  
Blades

"MYFORD" Lathe  
"COLEY" Thermometers

**PAUL WITZIG & CO. PTY. LTD.**  
55 York Street, Sydney, N.S.W.  
Telephone: BX 3147

Telephones (C.6406/15,835). Trans-  
mission Products Pty. Ltd.,  
£4,760/12/8.

Cement (C.6414/15,876). Aus-  
tralian Cement Ltd. Rates.

Cement (C.6414/15,877-81). T. S.  
Nettlefold & Sons, The S.A. Port-  
land Cement Co. Ltd., Elder Smith  
& Co. Ltd., Swan Portland Cement  
Ltd., Goliath Portland Cement Co.  
Ltd. Rates.

Caravans (A.A. 597/252). Furness  
Ltd., £886/15/-.

## DEPARTMENT OF WORKS AND HOUSING.

Hot Water Supply, for Students'  
Hostel, Forestry School, Canberra.  
A.C.T. Engineering Co., £5,930.

Kitchen Ventilation Plant, for  
Students' Hostel, Forestry School,  
Canberra. Air Design Engineer-  
ing, £398/10/-.

Steam Heated Hot Press, for  
Cadets' Block, Area "F", Royal  
Military College, Duntroon. A.C.T.  
Engineering Co., £268.

Bench Lathes (two), for Can-  
berra High School. McPherson's  
Pty. Ltd., £284/19/10.

Cleaner's Sinks (34), for Ad-  
ministrative Offices Building, Can-  
berra. R. Fowler Ltd., £368/15/-.

Toilet Paper Holders (201), for  
Administrative Offices Building.  
E. H. Lee & Courtney, £201.

Liquid Soap Holders (230), for  
Administrative Offices Building.  
Briscoe & Co. Ltd., £204/2/6.

Refrigeration Units (3), for  
Cool Rooms at Military Camp,  
Puckapunyal. Eckersley & Sons  
Pty. Ltd., £737/11/8.

Dust Extraction Ductwork at  
Repat. General Hospital, Heidel-  
berg. H. W. Creek & Sons, £454.

Exhaust Air Ventilation Sys-  
tems (2), at Aero Club Hangar,  
Moorabbin. H. W. Creek & Sons,  
£600/10/-.

Terra Cotta Tiles and Specials,  
for Melbourne and Sydney. Fran-  
cis Bourke Pty. Ltd., £39,378/17/6.

Cooling Ranges at Army Camp,  
Woodside. Levin & Co. Ltd.,  
£2,202/3/1.

Steam Boiler Installation, Sec-  
tion 2, at Migrant Hostel, Gepps  
Cross. Pascoe & Co. Ltd., £3,138.

Sewage Pumping Equipment, for  
Swanbourne Army Camp. Newton  
McLaren Ltd., £1,176.

Hood and Exhaust Fan, for Re-  
pat. General Hospital, Hollywood.  
Harris, Scarfe & Sandovers,  
£300/5/-.

## DEPARTMENT OF SUPPLY.

Knicker, Net Cotton Drawers  
(File No. C.4/255/54). Bond's In-  
dustries Ltd., £3,105/2/4; Dominion  
Knitting Mills Pty. Ltd., £702.

Lisle, Fully Fashioned Stockings  
(File No. C.4/255/44). Universal  
Hosiery Pty. Ltd., £477/15/-.

Cardigan Jackets (File No. C.4/  
255/43). E. W. Spark Pty. Ltd.,  
£1,155.

Wool and Cotton Drawers (File  
No. C.4/255/41). Maryborough  
Knitting Mills (Cuttie) Ltd.,  
£10,173/12/8.

Wool and Cotton Drawers (File  
No. C.4/255/38). Eastaugh Ltd.,  
£21,563/14/7.

Cotton Athletic Singlets (File  
No. C.4/255/37). Dominion Knit-  
ting Mills Pty. Ltd., £3,402/5/3;

Bruce Pie Industries Pty. Ltd.,  
£5,886/11/3; and Bonds Industries  
Ltd., £1,678/6/1.

## ENGINEERS!

SAVE YOURSELVES  
TROUBLE BY USING



Manufactured by  
**W. A. L. Agnew & Son**  
PTY. LTD.  
371 MACAULAY ROAD  
NORTH MELBOURNE  
Phone: F 1484

## CHARLES O'REILLY

(Established 1864)

GENERAL CARRIERS

BOND AND FREE STORES

93-115 MARGARET STREET  
BRISBANE

Manufacturers' stocks held and  
distributed as requested at a  
nominal overhead charge covering  
all services. Enquiries solicited.

## COAL & COKE

for  
Manufacturers, Blacksmiths,  
etc.

BEST STEAMING COAL  
for all classes of Boilers and  
Household purposes

PROMPT DELIVERY

**JONES BROS. COAL**

PTY. LIMITED

Bridge Road, Pyrmont,

N.S.W.

Phone: MW 2691 (5 lines)

## CANS

Printed or Plain.

FANCY METAL BOXES  
KEGS AND DRUMS

**RICHARD HUGHES**  
PTY. LTD.

A MODERN FACTORY AT  
YOUR SERVICE

Phone UJ 2121 (6 lines)

59-75 Queens Rd., Fivedock  
N.S.W.



# SCIENTIFIC INSTRUMENT MAKERS

Repairs and Servicing of—  
Electrical, Optical  
and Automotive Instruments,  
Dental Equipment,  
Industrial Gauges.

## OLYMPIC METAL INDUSTRIES

Little Walker St., Nth. Sydney  
Tel.: XB 1978

Wool and Cotton Drawers (File No. C.4/255/25). Eastaugh Ltd., £5,055/7/10.

Cotton Athletic Singlets (File No. C.4/255/25). Dominion Knitting Mills Pty. Ltd., £2,763/2/-; and Bonds Industries Ltd., £3,115/15/6.

Nails, Wire (File No. S.P.9010). Lysaght Bros. & Co. Pty. Ltd., £53/1/1.

Badges, Embroidered (File No. C.4/255/33). A. Warhaft Pty. Ltd., £4,201/13/4.

"Adams" Model "A", Type AT3, Drying Tumbler (File No. C.4/312/3). William Adams & Co. Ltd., £333.

Sheets, Rubber Insertion (File No. C.4/318/41). S.A. Rubber Mills Ltd., £667/10/-.

English, Rubber Insertion (File No. C.4/318/41). Gardiner Gaskets Pty. Ltd., £150.

Bank of Manometers (File No. C.4/319/31). Townson & Mercer (Vic.) Pty. Ltd., £117.

Plates (File No. C.4/350/90). Raynors Pty. Ltd., £378.

Ice Cream Servers (File No. C.4/175/141). C. T. Coroneo & Co. Pty. Ltd., £81/5/-.

Ice Cream Servers (File No. C.4/175/141). R. Montgomery & Co., £77/12/-.

Vices, Offset, 5 in. (File No. C.4/171/53). Motor Parts & Service Ltd., £53/2/6.

Dredges Sugar, Stainless Steel, Dredges Flour Shaker (File No. C.4/175/197). Briccoe & Co. Ltd., £287/15/-.

Rings, Baking Cake (File No. C.4/175/197). Nock & Kirby Ltd., £107/12/8.

Toilet Paper (File No. C.4/179/104). Andrew Jack, Dyson & Co. Pty. Ltd., £746/15/-.

Towels, Roller (File No. C.4/256/115). Dri-Glo Towels Pty. Ltd., £292/10/-.

"Gorton" type "U" Standard Pantograph Engraving Machine (File No. C.4/313/325). Demco Machinery Co. Pty. Ltd., £465.

Thimbles (File No. C.4/350/87). Armac Industries, £233/0/7.

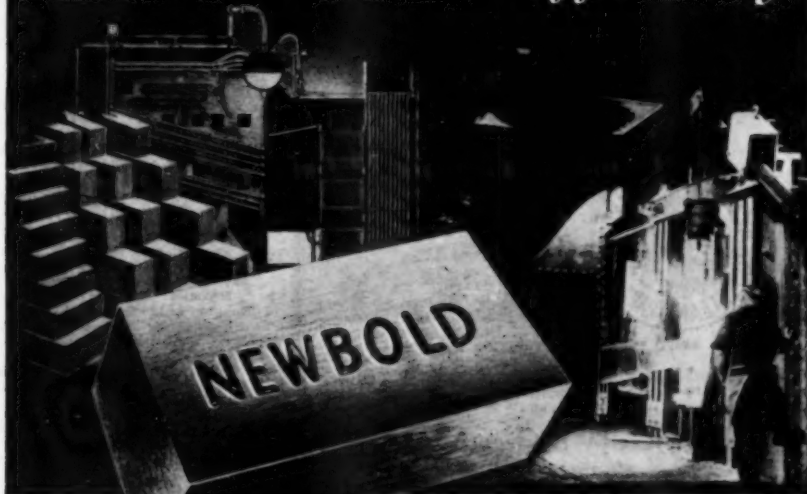
Commercial Brass (File No. C.4/371/394). Noyes Bros. (Melbourne) Ltd., £441/18/9.

Aluminium Alloy (File No. C.4/371/419). Australian Aluminium Co. Pty. Ltd., £10,943/0/1.

Commercial Brass (File No. C.4/371/394). Extruded Metals Pty. Ltd., £196/14/8.

Aluminium Alloy (File No. C.4/380/22). Martin & King Pty. Ltd., £5,760/4/3.

# Basic to Furnace Efficiency



## REFRACTORY CEMENTS AND BONDING MATERIALS . . .



To cut lining costs, reduce furnace maintenance and increase operating efficiency, Newbold has developed a complete range of job-proved refractory materials to meet every condition of temperature and corrosive action likely to be encountered in any industrial application. Whether the need is for a refractory cement or mortar for jointing work, repair or protective wash coating . . . for a plastic refractory for monolithic construction or patching—you can draw on Newbold for the right material to suit your particular operating requirements.

The Technical Department, at all times, will gladly render helpful assistance and advice without obligation.

### BONDING

#### CEMENTS AND MORTARS

Kyanite Cement . . . Silica Cement  
... Silcarb Cement . . . Magnesite  
Cement . . . High Temperature  
Cement and Grefco Chrome  
Cement . . . Fused Alumina  
Cement . . . Newbond . . . Sealite.

#### PLASTIC REFRACTORIES

Thermofrax and Kyanite Thermo-  
frax . . . Plastic Chrome Ore . . .  
Magneharth . . . Thermocast Re-  
fractory Concrete . . . Genister  
Acid and Basic Linings for High  
Frequency Furnaces.

# NEWBOLD

## GENERAL REFRACTORIES LTD.



Head Office: Gavey Street, Mayfield, N.S.W.  
WORKS—Mayfield, Thirroul, Port Kembla, Wollongong.

MINES & QUARRIES—Ulladulla, Cooma, Redhead, Marrangaroo, Thirroul, Home  
Ruia, Puggoon, Nailra, Merrygoon, Coonabarabran and Orange.



## REX PAK and TULIP



CORRECT PACKINGS FOR EVERY SERVICE  
Plastic - Metallic Fills - Automatic Lip - Brides - Sheet Jointings - Gaskets



Famous the world over -

**DRAYTON  
ARMSTRONG**

Trouble-free  
**STEAM TRAPS**

**DRICO Thermostatic Traps for light duty**  
ALSO

Strainers, Sight Glasses, Temperature Regulators,  
Pressure Switches and all types of Controls and Regulators.  
Made by Drayton Regulator & Instrument Co. Ltd., Middlesex, England

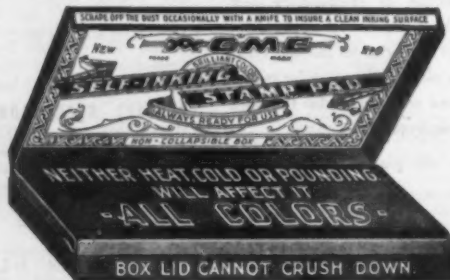
**Basil V. R. Greatrex**

PROPRIETARY LIMITED  
151 SUSSEX ST., SYDNEY, N.S.W.  
Telephone: SX 4717-8

## Numberless Bright Impressions

can be taken from "ACME" and "ESCO"  
**STAMP PADS**

Sizes range from "GEM," 1 1/2 in. x 2 1/2 in., to No. 15, 8 1/2 in. x 14 1/2 in., in the following colours: Black, Blue, Green, Carmine and Violet.



For an instantly-drying unblurring impression, use the "Esco" Quick Drying Penetrative Ink Pad.

**Excelsior Supply Co. Pty. Ltd.**

Manufacturers of Rubber Stamps, Pads, Inks, Stencils, etc.

HEAD OFFICE:  
278 Post Office Place, 160 BROADWAY, 50 Victoria Street,  
MELBOURNE, VIC. SYDNEY, N.S.W. WELLINGTON, N.Z.  
Sole Australasian Representative of De VILBISS-AEROGRAPH  
Spray Painting and Finishing Equipment.

## STORES SUPPLY AND TENDER BOARD.

Ink Powders, (C.T.B. 891/5118). Joplin Manufacturing Co. Rates.  
Writing Ink (C.T.B. 891/5119). Griffiths Inks. Rates.  
Writing Ink and Office Paste (C.T.B. 891/5120). Angus & Co. Pty. Ltd. Rates.  
Paste Powders (C.T.B. 891/5122). Davis Gelatine (A.) Pty. Ltd. Rates.  
Pencils (C.T.B. 895/5125). The Royal Sovereign Pencil Co. (A.) Pty. Ltd. Rates.  
Pencils (C.T.B. 895/5126). Eagle Pencil Co. of Aust. Pty. Ltd. Rates.  
Teleprinter and Teletype Rolls (C.T.B. 888/5069). Lamson Paragon Ltd., 5531/5/-.  
Typewriter Ribbons, Carbon Paper, etc. (C.T.B. 899/5111). E. Luft & Son Pty. Ltd. Rates.  
Typewriter Ribbons, Carbon Paper, etc. (C.T.B. 899/5112). Columbia Writing Products Pty. Ltd. Rates.  
Typewriter Ribbons, Carbon Paper, etc. (C.T.B. 899/5113). Ramsay & Hall Pty. Ltd. Rates.  
Ribbons (C.T.B. 899/5114). Burroughs Ltd. Rates.  
Duplicating Stencils (C.T.B. 899/5115). Shovelton & Storey. Rates.  
Waterproof Drawing Ink (C.T.B. 891/5116). J. Mason & Son Pty. Ltd. Rates.

## NEW SOUTH WALES

### PUBLIC WORKS DEPARTMENT.

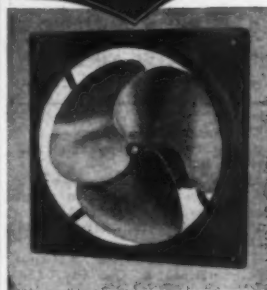
Bathing facilities and boiler house, Mental Hospital, Rydalmere, £5,400. E. H. Greenfield.  
Ventilating systems, four, £2,235. Sears Heating & Ventilating Co.  
Steam h.w. and treated cold water systems, District Hospital, Goulburn, £4,213. Sears Heating & Ventilating Co.  
Steam, h.w. and heating services, Prince Henry Hospital, £13,148. Sears Heating & Ventilating Co.  
Isolating switches without insulators, 132 kV, Southern Electricity Supply, £2,555. Essantec Switchgear Pty. Ltd.  
Instal. a.c. elec. power, Delegate water supply, £3,183. Narbey Electrical.  
X-ray diffraction unit, University of Technology, £2,415. Philips Electrical Industries of Aust. Ltd.  
Cable, lead covered, 11,000 V., 0.75 sq. in., S.E.S. general system, £2,512. British Insulated Callender Cables Ltd.  
Fire fighting equip. and water service, agricultural school, Yanco, £1,672. J. C. Watts.  
X-ray plant and accessories, district hospital, Boggabri, £217. Stanford X-ray Co. Pty. Ltd.  
X-ray plant and accessories, district hospital, Coonabarabran, £748. Stanford X-ray Co. Pty. Ltd.

## VICTORIA

### GOVERNMENT RAILWAYS DEPARTMENT.

Galvanised Steel Fencing Wire (Con. 58,556). H. C. Sleigh Ltd. Rates.

**DISPELS  
FUMES and  
FOUL AIR**



● Australia's foremost square framed exhaust fan, available with 16, 20, 24 and 30 inch diameter blades of highly polished aluminium.

● Also available with round frames if required. 16 and 20 inch blade diameters only.

● Frames of pressed steel, allowing for easy mounting through specially drilled holes, or welding direct to ductwork.

● Power supplied by motors of adequate power, least rating 1/2 h.p.

● Each unit covered by a twelve months' warranty against structural fault.

**\*Airspeed  
EXHAUSTERS**

Manufactured by  
**BRYANT BROS. Pty. Ltd.**

Herbert St., St. Leonards, N.S.W.  
Tel.: XF 1094

Makers of AIRSPEED  
Air Circulators - Exhausters -  
Mancoolers





## High Precision GEARs



Spur, Single Helical, Double Helical, Bevel, Internal, Worm Wheels, Worms with Ground Threads.  
All types of Reduction Gear Units.  
Standard Worm Reducers, Internal Reducers, Mill Type Reducers, also custom-built units.

**WELSH GEARS INCORPORATE RELIABILITY,  
LONG LIFE AND HIGH EFFICIENCY**



# JOHN WELSH PTY. LTD.

ENGINEERS AND GEARCUTTERS

12-16 MILLER ST., EAST BRUNSWICK, N.H., MELB.

PHONES: FW 4146-7. TELEGRAMS: "WELSHGEAR" MELBOURNE

Lead Acid Batteries (Con. 5861).  
A. P. Sutherland. Rates.

Quad Crown 2. Revolving Letter-Press Printing Machine (Con. 58,227). F. T. Wimble & Co. Ltd.

#### DEPARTMENT OF EDUCATION.

Drilling mach., Alfred Herbert type "C," with suds pump, 1 1/2 in. dia., £287. Alfred Herbert (Aust.) Pty. Ltd.

Alternator, 5 kVA, 3-phase, 415-740 V., 50 cycle, 1,500 r.p.m., with voltage regulator and built in exciter, £100. Bingle Machinery Pty. Ltd.

#### QUEENSLAND

##### BRISBANE CITY COUNCIL.

Cable, 7/044 p.v.c., 150,000 yd., £4,219; weatherproof v.l.r., 10/083, 2,000 yd., £583. Noyes Bros. (Sydney) Ltd.; 7/044 weatherproof v.l.r., 25,000 yd., £1,239; 7/044 v.l.r., 1,000 yd., £81; 10/064 p.v.c., 7,500 yd., £1,011; 37/064 weatherproof v.l.r., 1,000 yd., £345; 37/064 weatherproof v.l.r., 1,000 yd., £512; 37/105 weatherproof v.l.r., 1,000 yd., £832; 61/108 weatherproof v.l.r., 500 yd., £641. Gilbert Lodge & Co.; 7/044 weatherproof v.l.r., 25,000 yd., £1,239; 7/064 v.l.r., 1,000 yd., £81; 10/064 p.v.c., 7,500 yd., £1,011; 37/064 weatherproof v.l.r., 1,000 yd., £345; 37/064 weatherproof v.l.r., 1,000 yd., £512; 37/105 weatherproof v.l.r., 1,000 yd., £832; 61/108 weatherproof v.l.r., 500 yd., £641. Trackson Bros. Pty. Ltd.

Dye line paper, "Oce" brand, heavy weight, 18/10 per roll; medium weight 15/6 per roll; heavy weight, 40 in. x 20 yds., 23/10 per roll; dye line, "Oce" brand, 107/- per roll; ferro prussiate paper, "Chromax" brand, 12/10 per roll. Commercial Blue Print Co. Tramway rails and fastenings, £26,955. Elder Smith & Co.

#### MISCELLANEOUS.

Power graders, s.h., two, 60-80 h.p. Austin Western, £5,300 ea. Heavy Equipment Ltd., for the Beaudesert Shire Council.

Caravans, 2-berth, with stores compartment, 2-wheeled, pneumatic tyred, with draw bars, two, £285 ea., for Moreton Shire Council. The Walkabout Caravan Co.

Steel frame building, £1,802, for Redcliffe Town Council. Sidney Williams & Co. Pty. Ltd.

#### WEST AUSTRALIA

##### GOVERNMENT TENDER BOARD.

Diesel engine driven water pumping plant, £250. Southern Cross Windmill & Engine Co. Ltd.

Sluice valves, c.i. Item 1, £5/16/- ea.; Item 2, £9/12/- ea.; Item 3, £9/13/- ea.; Item 4, £14/17/- ea.; Item 5, £15/1/- ea.; Item 6, £20/11/- ea.; Item 7, £30/15/- ea.; Item 8, £40/14/6 ea. Geo. Kent (W.A.) Pty. Ltd.; Item 9, £14/16/- ea.; Item 10, £22/3/9 ea.; Item 11, £31/10/3 ea.; Item 12, £35/1/8 ea. M. B. John Ltd.

Electric motors and switchgear: Item 1, £238; Item 2, £104; Item 3, £58; Item 4, £74; Item 5, £91; Item 6, £26/11/-; Item 7, £55; Item 8 (a), £31/15/- ea.; Item 11 (a), £33. Carlyle & Co.; Item 8 (b), £11/10/- ea., less 10 per cent.; Item 9, £21/10/- ea., less 10 per cent.; Item 10, £21/10/- ea., less 10 per cent.; Item 11 (b), £11/10/- ea., less 10 per cent. Atkins (W.A.) Ltd.; Item 12, £5. Western Machinery Co. Pty. Ltd.

Pumping machinery: Item 1, £1,417; Item 2, £64; Item 3, £95. Noyes Bros. (Melb.) Ltd.

Copper conductor and insulator hardware: Item 1, £125 ea. Johnson & Phillips Ltd.; Item 2, £101 per set; Item 3, £10 s/g. per set; Item 4 (a), £12 per set; Item 5, £285 ea.; Item 7, £7/14/6 ea.; Item 8, 6/- ea.; Item 9, £6/19/6 ea. H. A. Berryman; Item 4 (b), £4/14/- ea. Noyes Bros. (Melb.) Ltd.; Item 4 (c), £7/12/- ea. Noyes Bros. (Melb.) Ltd.; Item 6, £11/10/- ea. R. P. McInerney & Co. Ltd.; Item 10, £1/9/2 per lb.; Item 11, £1/9/3 per lb.; Item 12, £1/9/4 per lb.; Item 13, 2/6 ea.; Item 14, 1/3 ea.; Item 15, 1/- ea. Atkins (W.A.) Ltd.; Item 16, 2/4 ea.; Item 17, 4/- ea.; Item 18, 3/10 ea.; Item 19, 16/- ea.; Item 20, 16/- ea.; Item 21, £1/6/6 ea.; Item 22, £1/6/6 ea. G. G. Martin Ltd.; Item Electric Co. Pty. Ltd.

Machinery, Item 1, £1,238; Item 2, £128. Brown & Dureau; Item 4, £208. Ellbeck & Son; Item 1b, £44/17/6; Item 2, £172, plus cost of motor; Item 5, £16/15/3. McPherson's Ltd.

Shaping mach., high speed, model 48 "Alba", £295. McPherson's Ltd.

Marine diesel engine, £425; accessories, £107. Flower Davies & Johnson Ltd.

Elec. motors and starters, Item 1, £139; Item 2, £162; Item 4, £262; Item 6, £174; Item 7, £195; Item 8, £75. Carlyle & Co.; Item 9, £128. British General Electric.

Steel cored aluminium conductor, 60 kV, Item 1, £18/1/- s/g. per 100 yds. John Hart; Item 4, £1/1/3 s/g. ea. Stewart & Lloyds; Item 5, £1/3/6 s/g. ea. Stewart & Lloyds.

Diesel engine, item 1a, £2,350; item 1b, £275; item 1c, £155. Wm. Adams.

Identification plates, 43,506, £27/1/8 per 1,000. Jason Industries Ltd.

Copper cable, item 2, £274 per ton; Item 4, £273 per ton; Item 6, £274 per ton. Atkins (W.A.) Ltd.

Cast manganese steel crossings, £118 s/g. ea. Horrocks Roxburgh. Steel Sections, at rates. Norman W. Hutchinson & Sons; Elder Smith & Co. Ltd.; English Steel Corporation Ltd.

Thaonite, Cooke-Troughton & Sims Model V.100, £168. Julian R. Brooking.

Marine Fuel Oil "Sir James Mitchell" Albany, as required for six months commencing July 5, 1951, 192/- per ton. Commonwealth Oil Refineries Ltd.; as required for six months commencing 5/1/51, 192/- per ton. Shell Co. of Aust. Ltd.



# DETEL PAINT



ABSOLUTELY

DEFIATS

**ACIDS \* ALKALIES \* SEA WATER**  
**AND THE MAJORITY OF CHEMICAL SOLUTIONS**

MIDDLESEX, ENGLAND.

Australian Selling Agents: MANUFACTURED BY DETEL PRODUCTS LTD., GREENFORD,

**McKINLAY FLETCHER Pty. Ltd. 277 CLARENCE ST. SYDNEY Phone: M2775**

## CURRENT TENDERS

### NEW TENDERS

The following tenders have been called since our last issue. Current tenders which have been published in previous issues follow this section.

#### COMMONWEALTH

##### AUSTRALIAN ALUMINIUM PRODUCTION COMMISSION.

Telfer and Grab, Supporting Steel Work, and Hopper, for Ash Removal (Spec. M47). April 9.  
Electro - Magnetic Vibrating Feeders (5), (Spec. M48). April 9.

##### DEPARTMENT OF WORKS AND HOUSING.

Automatic Voltage Regulator, for Gungahlin, A.C.T. April 2.  
Copper H.W. Tanks, 80-gallon, (2), for Richmond (Quot. 328). March 8.  
Hot Water Supply Systems (2), for Canberra. May 8.  
Hydro Electric Generating Plant, for Port Moresby. June 19.  
Kitchen and other Cupboard Fittings, for Stores Stock, Canberra. March 13.

Oil Fired Hot Water Heating System, for Fishermen's Bond. March 20.  
Sewage Ejector, for Laverton. March 13.  
Tables (161), for Canberra. March 13.

##### DEPARTMENT OF CIVIL AVIATION.

Covers and Frames, C.I., for Cable Pit Manholes (Sch. 332). March 13.  
Electrical Test Equipment (Sch. 330). April 10.

##### GOVERNMENT RAILWAYS DEPARTMENT.

Diesel Engines and Centrifugal Pumps. March 20.

##### POSTMASTER-GENERAL'S DEPARTMENT.

Cable Drum Trailers (Sch. C. 6524). March 20.  
Engine-driven Generators (Sch. C. 6528). May 24.  
Ink Pads, Hand Postmarkers (Sch. C. 6501). March 22.  
Kerosene Heaters (Sch. V.459). March 20.  
Printed Forms, Stores Branch Series (Sch. C. 6530). March 20.  
Portable Air Compressors (Sch. C. 6520). March 29.  
Radio Transmission Line Switches (Sch. C. 6488). April 19.

Time Clock Cards (Sch. V.457). March 6.  
Transformer Boxes (Sch. C. 6517). March 22.  
Wire, G.L. Steel Stranded (Sch. C. 6519). April 5.

##### SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION.

Generating Sets, 170 K.V.A. Diesel, Electric, (2), (Spec. 221). March 9.

#### NEW SOUTH WALES

##### DEPARTMENT OF SUPPLY.

Babies' Baths and 4-Gall. Boilers. March 6.  
Electric Jugs (216), and Toasters (249). March 8.  
Enamel and Lacquer. March 6.  
Hydraulic Piston Ring Lapping Machines (2), Purchase of, March 6.  
Misc. Paints. March 6.  
Pre-Heater Portable Ground Type Engines (2), Purchase of, March 6.  
Portable Valve Seat Grinding Machines (3), Purchase of, March 6.  
Protecting Covers and Steel Adaptors, for Practice Shot. March 6.  
Single Sheets (20,400), for Dept. of Air. March 6.

##### FORESTRY COMMISSION.

Evaporating Bath, Electric. March 6.  
Motor Graders. March 6.  
Portable Electric Drills. March 6.  
Sacks. March 6.  
Soxhlet Apparatus. March 6.

##### GOVERNMENT RAILWAYS DEPARTMENT.

Electric Overhead Travelling Crane, 15-ton, for Clyde Waggon Works, Sydney (Spec. 540). April 4.

High-Speed Multi-Cylinder Compression Ignition Oil Engines, Vertical Type (27), of approx. 180 H.P., at 1,500 R.P.M. (Spec. 2221). March 14.

Indoor Type Oil Circuit Breakers (33,000-volt., 1,000 M.V.A.) and Associated Equipment. Extended to March 14.

Saws and General Tools (Sch. 5B); Chasers, Stocks, Dies and Taps (Sch. 5C); Plumbers' and Gasfitters' Ironmongery and Sanitary Ware (Sch. 10); Metals, Lead Pipe and Sheet, etc. (Sch. 29). Annual Supply, from 1st July, 1951, to 30th June, 1952. Closes March 7.

##### METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Cylindrical Copper Screens (10), for Reservoir Outlets (Job 2482). March 13.

(Turn to page 77.)

## NICHROME

### RESISTANCE WIRE

### THE WORLD'S BEST

Made in England

SOLE AUSTRALIAN AGENTS:

**WARMAN & DOUGLAS**

241 FLINDERS LANE, MELBOURNE.

Phone: JM 1503.

Let us speed up your Wire and Strip  
Forming on our Heenan & Froude  
4 SLIDE PRESS

WIRE STRAIGHTENING, POINTING AND  
BARREL NICKEL PLATING

**BRADSHAW AUTOMATICS PTY. LTD.**

147 CHAPEL STREET, ST. KILDA, S.I. VICTORIA

Telephones: LA 3236, (After Hours, U 9893), LA 4087.

Telegraphic Address: "BRADFINZ."



## NEW TENDERS - Contd.

Pressure Reducing Valve, for 4 in. Main (Job 2486). March 12.

### STATE CONTRACTS CONTROL BOARD.

Electric Motors. March 5.  
Hydraulic Press, 50-ton. March 6.  
Ladders. March 13.  
Primus Stoves. March 6.  
Relax Vacuum Bottle Filling Machine. March 14.  
Vacuum Smut Inoculators. March 6.

### SYDNEY CITY COUNCIL.

Diesel Alternator Set. March 9.  
Dust Washing and Filtering Equipment. March 7.

### SYDNEY COUNTY COUNCIL.

Electric Lamps, for Street Lighting and General Purposes (Spec. 1512). Extended to March 15.  
Low-voltage Cables, for Fyrmont "B" Power Station (Spec. 1533). April 5.  
Overhead Loader, Motor-driven, Self-propelled, New or Second-hand, for Bunnerong Power Station (Spec. 1535). March 29.

### MISCELLANEOUS.

Heavy-duty Motor Grader, Diesel Operated, Medium Motor Grader, for Municipality of Condobolin. March 12.

## ♦ ♦ SEE ALSO ♦ ♦ "LATE OPEN TENDERS"

Motor Grader, Power Controlled, with or without Cab, fitted with Scarifier, for Shire of Wingadee. March 14.

## VICTORIA

### DEPARTMENT OF PUBLIC WORKS.

Kerosene Hot-Water Service, Supply and Instal, for Upper Fern-tree Gully. March 13.  
Kerosene Hot-water Service, Supply and Instal, for Woodside. March 20.

### GOVERNMENT RAILWAYS DEPARTMENT.

Automatic Air Compressor; Spray Guns, Twin Head (S). April 15.  
Cabinets, Double Frame Type. May 2.

### MELBOURNE AND METROPOLITAN BOARD OF WORKS.

Light Mobile Cranes (S). March 13.

### MELBOURNE AND METROPOLITAN TRAMWAYS BOARD.

Air-operated High - pressure Power Pump, for Motor Bus Lubrication (Tender 1616). March 12.

(Turn to page 78.)

**IT'S FASTER  
IT'S EASIER  
IT'S CHEAPER**

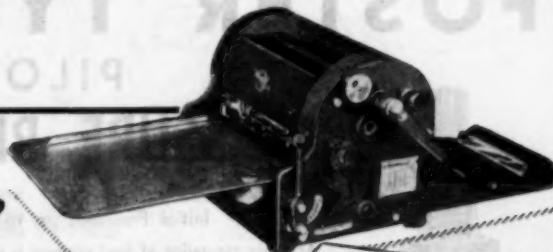
**because Fordigraph has ...**

**NO INKS!**

**NO STENCILS!**

**NO GELATINE!**

**NO ABSORBENT PAPERS!**



**HAVE YOU SEEN  
FORDIGRAPH?**



**STREAMLINE**



**NIPPA**



**MIDGET**

To Fordigraph your memos, price lists, drawings, etc., is to get them out and circulating in as little time as it takes to type, write or draw them on paper! Using paper originals, that are as easily corrected and filed as letters, the Fordigraph makes copying easy and cuts costs to a figure of 50% that of ordinary duplicating—and with the advantage of multi-coloured reproduction without inks and separate runs.

Here are some further features—no interleaving, instantly smudge-proof copies on air mail tissue, bank, bond, super-calender and art paper or systems board . . . one to seven colours reproduced simultaneously . . . fill-ins and alterations same appearance as original matter.

Get the facts on Fordigraph for faster, cheaper, easier copying.



**MODELS AVAILABLE  
FROM AS LOW  
AS £27**

**INCLUDING TAX**

★ FORDIGRAPH MODELS FROM WHICH TO CHOOSE:  
A model to suit your business—hand or electric; foolscap, brief, or endless feed; also Multilix line selection machine for mechanising business systems.

**Fordigraph**

100% BRITISH

**FORDIGRAPH COMPANY (AUSTRALIA)**

Head Office: Dymock's Building, 428 George St., Sydney. MA 9511. Victoria: Vaughan House, 106 Queen St., Melbourne. MU 7759. Sales & Service: Agencies in Adelaide, Brisbane, Perth, Launceston.

**FORDIGRAPH ROTARY REPRODUCERS—MULTILIX SYSTEMS MACHINES**



# FOSTER TYPE 37-G2

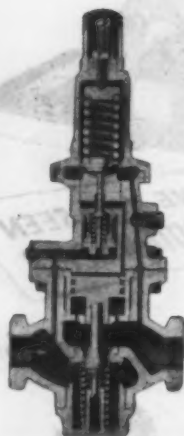
## PILOT OPERATED PRESSURE REDUCING REGULATOR

(PATENTED)

Initial Pressures up to 300 p.s.i. Final Pressures 3 to 275 p.s.i.

Accurate regulation of final pressure is unaffected by the widest variations of initial pressure, temperature or flow within the capacity limits.

Both Main and Pilot Valves Protected with Built in Strainers



Manufactured in  
Australia under  
licence by

### GOOLD & CLYDE WILSON-REID

PTY. LTD.

800 GEORGE STREET, SYDNEY, N.S.W.

M 3704 — M 3414

Write or Phone for Details

#### NEW TENDERS — Contd.

Electric Travelling Head Cross-cut Saw (Tender 1617). March 12.  
Two-way Mobile Radio Communication (Tender 1614). May 28.

#### STATE ELECTRICITY COMMISSION.

Belt Conveyors, for Tanjil East Quarry (Spec. 80-51/287). March 28.  
C.I. Fullway Valves (Spec. 80-51/285). April 4.  
Derrick Crane, Electrically Operated, 5-ton (Spec. 80-51/279). March 28.  
Fuel Oil, for Stationary Diesel Engines (Spec. 80-51/274). March 14.  
Valves, for Bled Steam, Feed Pump Exhaust (Spec. 80-51/276). April 4.

#### MISCELLANEOUS.

Power Grader, Heavy Tandem Drive, Diesel-operated, for Shire of East Loddon. March 7.  
Quarrying and Crushing Plant, with necessary Auxiliary Equipment, for Shire of Wycheproof. March 21.

#### WEST AUSTRALIA

#### GOVERNMENT TENDER BOARD.

Exhaust Fan Unit, for Government House Ballroom. March 8.

Evaporative Cooling Unit, for Kalgoorlie Hospital. March 8.  
Radio Receivers, for Wagin Hospital. March 8.  
Saw Dust Separator, Supply and erect. March 15.

#### CURRENT TENDERS

The following tenders have appeared in previous issues and are still current.

#### COMMONWEALTH

#### POSTMASTER-GENERAL'S DEPARTMENT.

Accumulator Plates and Separators (Sch. C.6523). March 15.  
Communication System between Sydney and Melbourne (Spec. C.6157). Extended to April 17, 1951.  
F.M. Radio Link Equipment, Portable (Sch. C.6494). March 6.  
Jugs, Mild Steel Plate (Sch. C.6513). March 15.  
Labels, for Mail Bags (Sch. C.6505). March 6.  
M.F. Broadcasting Transmitters and Associated Equipment (Sch. C.6508). May 2.  
Physical Programme Line Equipment (Sch. C.6495). April 24.  
Printed Forms, P.P. Series (Sch. C.6529). March 15.  
Printed Publicity Matter (Sch. C.6526). March 8.

Relays, 3000 Type (Sch. C.6499). April 5.  
Tools, Leadworking and Measuring, etc. (Sch. C.6512). April 3.

#### AUSTRALIAN ALUMINIUM PRODUCTION COMMISSION.

Copper Strip, various sizes, approx. 21 ton (Spec. E.37). April 2.  
Galvanised Steel Framed Windows and Louvres, etc. (Spec. C.19). March 12.  
Laboratory Equipment, including 1-ton Crusher, 3 only Vacuum Pumps, Furnace, Copper Flasks, A periodic Reflecting Balance, and Miscellaneous Items (Spec. M.44). March 12.  
Roll Crusher and Plate Feeder (40 ton per hour), for Coal (Spec. M.46). April 2.  
Special Duty Pumps and Priming Ejectors (2), 1,200-gallon, for Ash Sluicing (Spec. M.45). April 2.

#### DEPARTMENT OF CIVIL AVIATION.

Constant Current Regulators, Static Core Type (Sch. 324). March 6.  
Hammock Stretchers, Neil-Robertson Type (Sch. 329). March 6.  
Insulated Copper Winding, Resistance and Fuse Wires (Sch. 326). April 2.  
Mobile Elevating Platform Trucks (Sch. 328). Extended to March 6.

#### DEPARTMENT OF WORKS AND HOUSING.

Cabinet Type Refrigerator, for Richmond (Quot. 324). March 8.  
Economiser, Grit Arrestor, Induced Fan and Associated Flues, Dampers, etc. for Ballarat. March 27.  
Pre-assembled Wiring Units (500), for Prefabricated Houses, Canberra. March 6.  
Sprinkler and Fire Alarm System, Automatic, for F.M.G. Carpenters' Workshop, at Adelaide. March 6.  
Switchgear—11 K.V. for Power Station, Canberra. Mar. 13.  
Ventilating Units, Supply and installation, for various Localities. March 6.

#### GOVERNMENT RAILWAYS DEPARTMENT.

Axlebox Brasses. March 6.  
Transformers. March 13.

#### STATES

#### NEW SOUTH WALES

#### GOVERNMENT RAILWAYS DEPARTMENT.

Crane, 21 ton, with Electric Winch (Spec. CE-10,181). March 19.  
Centre Lathes, Centre Height 21 in. to 3 in. Sliding, Surfacing (Turn to page 80.)



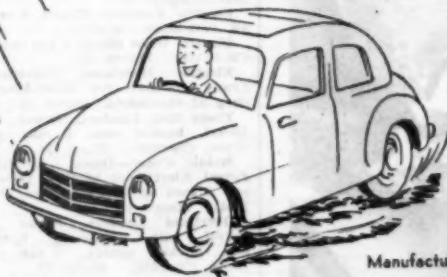


# STORMSEAL

## FLEXIBLE SEALING AND CAULKING COMPOUND

is ideal for sealing automobile windscreens, windows, drip mouldings, roofs and tops. In fact, it can be used anywhere where a flexible and waterproof seal is required.  
"Stormseal" is not affected by heat, cold or moisture; it will not harden with age and it's easy to clean off outside surfaces.

Supplied in pint, quart, 1-gallon and 4-gallon tins AT ALL STORES



Manufactured by **ORMISTON RUBBER CO. PTY. LTD.** Moonee Ponds, Victoria.

Interstate Agents: Mica and Insulating Supplies Co., N.S.W., S.A., W.A., Q'land;  
Miller Bros., Launceston, Tas.  
Reliance Trading Co., Hobart, Tas.

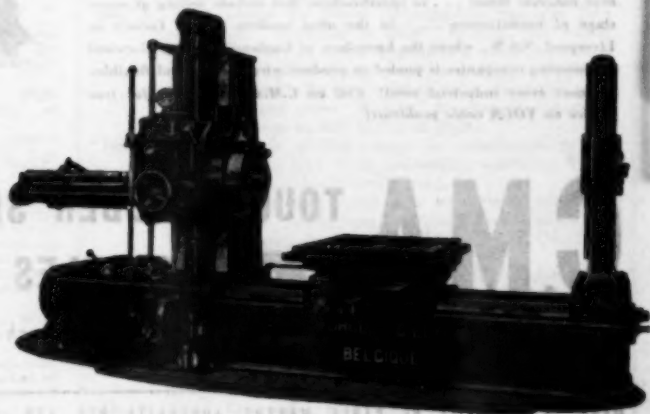
OR-15 HP

## WE GUARANTEE

*to deliver this machine  
within 5 months*

### HORIZONTAL BORERS

These high-grade precision machines are manufactured at the famous Forges de Gilly factory in Belgium. They represent the finest European manufacturing skills, and will give a lifetime of magnificent service. Available in 2½ in., 3½ in., 4 in., 5½ in. and 6½ in. traversing spindle.



**Qualos**

*Shipment just arrived. Inspect Now*

**SALES PTY. LTD.**

89-101 Lathian Street  
North Melbourne

OS-22 HP





In garages . . . factories . . . wherever flexibles are called upon to stand up to extra hard wear . . . specify C.M.A. Tough Rubber Sheathed Flexibles! Specially built to stand up to the wear and tear of dragging over concrete floors . . . to specifications that include testing at every stage of manufacture . . . in the ultra modern C.M.A. factory at Liverpool, N.S.W., where the know-how of England's leading electrical engineering companies is pooled to produce wires, cables and flexibles to meet every industrial need! Call on C.M.A. technicians for free advice on YOUR cable problems!

**C.M.A. TOUGH RUBBER SHEATHED FLEXIBLES**

Regd. Trade Mark Nos. 3895-7-8

Backed by over 100 years of research

One of a complete range of C.M.A. Wires, Cables and Flexibles.

Made in Australia by CABLE MAKERS AUSTRALIA PTY. LTD., Liverpool, N.S.W.

**NONPORITE PTY. LTD.**  
292-6 BURWOOD RD.,  
HAWTHORN, E.2, VIC.  
Telephones: Haw. 5591-3, 561.



**AGENTS  
ALL  
CAPITAL  
CITIES  
SEE  
TELEPHONE  
DIRECTORY**

**HARD CHROME PLATING**  
for Building Up  
**DIES, GAUGES, SHAFTS**  
**Woodward & Thurston Pty. Ltd.**  
205 St. John's Road, GLEBE  
SYDNEY, N.S.W.  
Phone: MW 2271 (2 Lines)

## CURRENT TENDERS - contd.

and Screw-cutting Type (CE-10139). April 2.

Circuit Breakers - High-speed, 1500-volt, Complete with Control Equipment, for Western Main Line. (Spec. 1284). Supply of 165. March 14.

Diesel or Petrol Overhead Loaders, Crawler Mounted, cap. bucket approx.  $\frac{1}{2}$  cub. yd. (Spec. CE-2657). March 21.

Diesel Truck Type Mobile Cranes, 6-ton and 16-ton (Spec. Nos. CE-2667 and CE-2668). March 21.

Diesel Mobile Cranes, 7-ton, with Caterpillar Tracks (Spec. CE-2669). March 21.

Electric Concrete Mixers, 1 cub. yd. (CE-10155). April 3.

Electric Hoist Block, 1 ton (Spec. CE-10182). March 19.

Electric Overhead Travelling Crane (100-ton), for Main Workshop at Strathfield. March 28.

Front End Loaders, Petrol or Diesel, bucket cap.  $\frac{1}{2}$  cub. yd. (Spec. CE-2658). March 21.

Mobile Crane-Diesel - Electric, Petrol - Electric or Straight Diesel, cap. 6 tons up to 8 ft. (Spec. CE-2654). March 13.

Overhead Loaders, Diesel or Petrol, with Pneumatic Tyres, cap. bucket approx.  $\frac{1}{2}$  cub. yd. (Spec. CE-2656). March 21.

Steam Pipes and Headers for Lake Macquarie Power Station (Spec. 1280). Extended to March 7.

Steel (Sch. 22), Annual Supply from 1st July, 1951, to 30th June, 1952. Extended to March 7.

Supervisory Control Equipment, for Western Line Electrification (Spec. 1283). April 11.

Switchgear, Compound - Alled, 11,000 Volt, for Martin Place Sub-station (Spec. 1285). March 28.

## DEPARTMENT OF PUBLIC WORKS.

Cafe Unit; Sink Heater; Multi-point Heaters (all gas heated). March 7.

Cold Water Pumping Plant. March 7.

Chemical Feeders (3). March 9.

Crawler Track Tractors (3), approx. 120 h.p. March 14.

Electric Drill, Portable; Drill Chuck. March 8.

Electrically - driven Sewage Pumping Plant, for Hay Sewerage Augmentation (Spec. 45-50/51). March 19.

Photo-Electric Control Relays. March 14.

Recirculating Pump, Electrically Driven. March 7.

Septic Tank Effluent Pump. March 7.

Storage Cabinet, Ice Cream. March 7.

Valve, one Foot, and Strainer. March 14.

Welding and Cutting Plant (Comwell or Sim.); Cutting Blow Pipe. March 7.

## DEPARTMENT OF SUPPLY.

Cloud Searchlights (40). March 15.

Control Set, for Vortex Tunnels. March 8.

(Turn to page 81.)



## SHEET METAL AND WELDING

BLUE PRINT WORK A SPECIALITY • GUILLOTINING for the Trade • SUB-CONTRACT WORK UNDERTAKEN • DOMESTIC REFRIGERATOR CABINETS • FLUORESCENT LIGHTING—all Types • OXY • ELECTRIC • SPOT WELDING

### DON METALCRAFT COMPANY

9-15 Glen Street, MARRICKVILLE, N.S.W.

LL 1543

## CURRENT TENDERS—contd.

Earthenware Mugs, 100,000. March 9.  
Fork Lift Trucks (3). March 6.

### METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Concrete Buckets (6) of rated capacity at least 4 cub. yds. (P.T. 392). March 6.

Concrete Mixers (20), 3½ cub. ft. wet cap., pneumatic-tyred, trailer-type, and 3 spare engines (P.T. 393). April 17.

Concrete Mixers (8), 15 cub. ft. wet cap., 5 fitted with Diesel Engines, and 3 with electric motors, and supply of 1 spare electric motor and 1 spare Diesel engine (P.T. 399). April 17.

Horizontal Spindle Centrifugal Type Sewage Pumping Units, Electrically Driven (3), (Contract 2973). April 10.

M. S. Plates—approx. 530 tons and 25 tons of Structural Steel Sections (Job 2465). Extended to March 6.

### STATE CONTRACTS CONTROL BOARD.

Handles. March 6.  
Incinerators. March 6.

### SYDNEY COUNTY COUNCIL.

Aerial Service Cable during period 1st July, 1951, to 30th June, 1952 (Spec. 1510). March 15.

Base Exchange Raw Water Softener, for Evaporator Plant, Bunnerrong "B" Power Station (Spec. 1525). March 15.

Hard Draw Bare Copper Cable and Copper Wires during period 1st July, 1951, to 30th June, 1952. March 15.

Mobile Testing Equipment, High-voltage (Spec. 1524). April 19.

Overhead Transmission Line (132,000 Volt), Lugarno to Homobush (Spec. 1403). March 15.

Relays and Associated Equipment, for Bushar Protection at Homobush Sub-station (Spec. 1522). April 26.

Rubber Insulated Cables during the period 1st July, 1951, to 30th June, 1952 (Spec. 1509). March 15.

Switchboards, Low Voltage, and Sub-station Service Panels, for Sub-stations (Spec. 1515). March 8.

Transformer Winding Temperature Indicators (Spec. 1519). April 12.

Turbine Diaphragms, for Bunnerrong "A" Power Station (Spec. 1529). March 15.

Turbine Blading, for Fyrmon "A" Power Station (Spec. 1530). March 15.

### MISCELLANEOUS.

Air Compressor, capable of operating one Jackhammer; Small Tractor, about 5 to 15 H.P., fitted with Dozer Blade; Four-berth Caravans (2), for Shire of Abercrombie. March 5.

Air Compressor, Trailer Type, of 100 cub. ft. per minute capacity; General-Purpose Light Motor Truck of 30 cwt.-2-ton capacity; Overhead Loader of 1 cub. yd. cap., approx. 40 h.p.; Power Chain Saw with 3 ft. Cutter Bar; Portable Winch, Single or Double Drum, with Clutch and Brake; Stationary Engine, Petrol or Kerosene, 8 h.p., for Shire of Dumaresq. March 15. Centrifugal Pumping Plants, Electrically Driven (2), (Contract W-18), for Shire of Sheathaven. March 26.

Crawler Tractor, approx. 55-60 h.p., fitted with Angle Dozer Equipment, for Shire of Namoi. March 9.

Crawler Tractors (2), complete with Dozer Equipment; Motor Graders (2); Tipping Trucks (6)—5 cub. yd. Bodies, for Shire of Manning. March 23.

Light Crawler Tractor, with Angle Dozer Equipment, for Municipality of Lane Cove. March 8.

Metal-clad Switchgear, High Tension, for Municipality of Manly. April 23.

Motor Lorry, 5-ton, Petrol Engine, fitted with 6 cub. yd. Tipping Body with Underbody Hoist; Crawler Tractor, 22-h.p., fitted with Hydraulically Operated Angle-doser Blade; Motor Lorry, 5-ton, fitted with Garbage Body of 12 cub. yd. cap., with Underbody Hoist; Motor Garbage Vehicle fitted with Closed Type Self-Loading Garbage Body, for Municipality of Botany. March 9.

Transformer, 750 K.V.A., 33/11 K.V., three-phase, for Bega Valley County Council. March 12.

Wheel Type Tractor, fitted with Front-End Loader, with bucket of 1 cub. yd. cap., for Municipality of Cowra. March 5.

## VICTORIA

### GOVERNMENT RAILWAYS DEPARTMENT.

Back Stripping Machine. April 11.

(Turn to page 82.)



## "BOSS" EYE AND FACE PROTECTORS WELDING ACCESSORIES

- No. 1: "Boss" Eye Protector bakelite frames designed to suit oxy-welding and clear lens. Providing maximum ventilation and comfort, together with an easily-adjustable elastic head band.
- No. 2: "Boss" Eye Protector lens available in Grade "A" B.S.S.679 green-tinted optical glass or, alternatively, blue-tinted lens for oxy-welding. Also available in clear shatterproof "Perspex" lens for grinding, chipping and painting operators.
- No. 3: "Boss" Model VI Visors for complete eye and face protection. Available in clear "Perspex" for emery wheel operators or similar applications where protection is required against flying particles. Also available in blue "Perspex" for oxy-welders, who normally wear spectacles, and green "Perspex" for furnace operator's face protection against heat and glare.
- No. 4: "Boss" earth or ground clamps for attachment to the work or return lead of an arc-welding machine. Easily adjustable and robustly constructed.
- No. 5: "Boss" Arc-welding Shield with or without adjustable head harness. Made from best quality vulcanised fibre, leakproof, lightweight and well ventilated. Complete with metal frame for holding lens.
- No. 6: "Boss" Heavy Duty Electrode Holder for current up to 300 amps. Heavily constructed gunmetal body and quick release electrode grip. Fitted with rubber-insulated handle and spatter guard.
- No. 7: "Boss" Model V2 Visor. Complete frontal head protection against corrosive and hot liquids. Specially designed for wearer's comfort and anti-fogging.
- No. 8: "Boss" Arc-welding Lens, size 4½ in. x 2 in. Available in Grade "C" and "D" B.S.S.679 optical glass. Also supplied fitted with transparent mirror for extra protection against infra-red rays.

Manufactured by

**BOSS ELECTRICAL MFG. CO.**

LEWISHAM, N.S.W. LM 1197.

Distributed by all leading engineering supply wholesalers in Sydney and Interstate Capital Cities



## THAT MAGIC WORD

We know quite a lot about Plastics—enough to help you if you want advice on the subject

Our experience covers the Manufacture of:

- PAINT BRUSH HANDLES
- TEXTILE FERNS and BOBBINS
- METER and CLOCK CASES
- STOVE and REFRIGERATOR PARTS
- BRUSH BACKS
- COAT HANGERS
- MILKING MACHINE PARTS

- ADVERTISING NOVELTIES
- PLATES, CUPS and SAUCERS
- BEAKERS and BOWLS
- LAMPS and LAMPSHADES
- CHAIR SEATS and BACKS
- RADIO CABINETS
- ELECTRIC FAN PARTS, Etc. Etc. Etc.



Makers of the famous "BEXWOOD" Plastic Wood  
and a large range of Toilet Brushware and Fancy Goods.

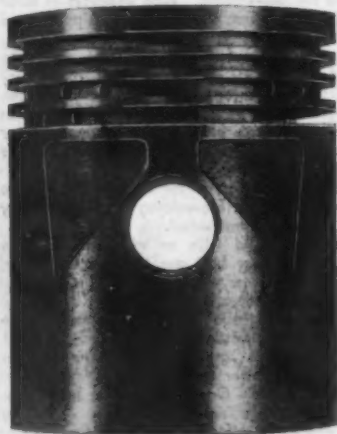
DIE MAKERS, CUSTOM MOULDERS AND PERSPEX FABRICATORS

**BRITISH XYLONITE (AUST.)** PTY LTD

Factory NEPEAN HIGHWAY, EAST BRIGHTON, Tel. XB 3121 (4 LINES)  
SHOWROOMS, 157 ST. COLLINS STREET, MELBOURNE, TEL. MU 1024  
SYDNEY Tel. MARS1 BRISBANE Tel. BULLION ADELAIDE Tel. CASH 8415 PERTH RA 144

**IT'S RIGHT**

IF MOULDED BY BRITISH XYLONITE



**P  
I  
S  
T  
O  
N**

**MANUFACTURERS AND  
CYLINDER GRINDERS**

Central Motor Engineering Co. Pty. Ltd.

99 CROWN ST., SYDNEY. Tel: MA 2538

*Plastics*

## CURRENT TENDERS — contd

Diesel Travelling Cranes, 10-ton (Con. 58,865). March 7.  
Electric Signal Lamps. March 7.  
Fork Lift Trucks (Contract 58,687). March 28.  
Front End Loader (Contract 58,688). March 14.  
Needle Perforating Machine. April 13.  
Pen Ruling Machine. April 13.  
Power Proof Press, Hand-fed. April 11.  
Sand Papering Machine, Triple Drum. March 28.  
Universal Saw Trimmer (Contract 58,704). April 11.  
Utility Truck, Road Motor (Contract 58,691). March 7.

### MELBOURNE HARBOUR TRUST.

M.S. Sections and Plates, 200 tons. March 9.

### STATE ELECTRICITY COMMISSION.

Aluminium Alloy Suspension Clamps and Saddles, Cast or Forged (Spec. 50-51/259). March 7.

Chemical Injection—High Pressure Drain, Blow Down, and Master Pressure Gauge Piping and Accessory Equipment (Spec. 50-51/230). April 4.

Conveyors, Slot Bunker, to "B. & C." Boiler House Bunkers, Yallourn (Spec. 50-51/251). March 7.

Current Limiting Reactors (Spec. 50-51/270). April 18.

Drilling Machines, for Kiewa (Spec. 50-51/262). March 7.

Electrical Indicating and Recording Instruments, Switchboard-type (Spec. 50-51/260). April 18.

Fuses, Low Voltage (Spec. 50-51/253). March 21.

Galvanised Steelwork, for Transmission Lines (Spec. 50-51/256). March 7.

Horizontal Centrifugal Pumps, for Kiewa (Spec. 50-51/264). March 11.

Lathes, for Maintenance Workshops at Yallourn (Spec. 50-51/254). March 7.

Lathes, for Central Base Workshops (Spec. 50-51/266). March 21.

Porcelain Disc Insulators, for Transmission Lines (Spec. 50-51/257). April 4.

Rock Crushing and Screening Plant (Spec. 50-51/243). March 21.

Sawmill Plant, for Yallourn Area (Spec. 50-51/267). March 21.

Static Rectifier Plant, 11,000 volt. (Spec. 50-51/261). May 2.

Single Ram Hydraulic Press (Spec. 50-51/249). March 7.

Steel Cored Aluminium Conductor. Extended to March 14.

Time Switches (Spec. 50-51/233). March 21.

Turbo-Generating Set. Steam, 20,000 K.W. (Spec. 50-51/171). March 28.

### MISCELLANEOUS.

Tractor, Pneumatic-tyred, Petrol or Kerosene; Mower Attachment; Rotary Hoe Attachment; Set of Harrows (Tandem Disc), for Shire of Alberton. March 5.

## QUEENSLAND

BRISBANE CITY COUNCIL.  
Step Down Transformers (6), 1,500 kVA, 22,000 V. to 11,000 V. (Con. E.1/1951). April 20.  
Underground Cable, Single Core, 11,000 V., P.I.L.C. (Contract E-2/1951). April 6.

### GOVERNMENT RAILWAYS DEPARTMENT.

Crawler Tractor; Scraper Scoop, Heavy Duty Ripper, Air Compressors, Concrete Mixers, Vibrators, Bumps and Barrows, Pneumatic Drills; Breakers and Picks, Ball Bender, Hydraulic Jacks. March 5.  
Fabricated Structural Steel (1,900 tons). March 22.

### STATE ELECTRICITY COMMISSION.

Light and Power Points and Associated Equipment (Spec. 282). March 21.

Power House Switchboards (Spec. 261). March 7.

Transformers (Spec. 259). March 28.

### MISCELLANEOUS.

Steel Pipe Line and Associated Works for Tully Falls Hydro Electric Scheme, July 22.

## SOUTH AUSTRALIA

### GOVERNMENT RAILWAYS DEPARTMENT.

Bogie Ore Waggon (100), 3 ft. 6 in. gauge. April 8.

### HARBOURS BOARD.

Cast Steel Cutter and Spare Blades. March 15.

## WEST AUSTRALIA

### GOVERNMENT TENDER BOARD.

Arc Welding Plant, d.c., 40-250 amp. March 8.

Bogies, for Railway Wagons. April 5.

Coal Handling Plant, for E. Perth Power House. April 19.

Gas Making and Ancillary Plant (Sch. 23A, 1951). Sept. 27.

Generating Set, Diesel Driven. March 8.

Road Brooms, Power Driven. March 8.

Transformers, 3,000 kVA. March 22.

Water Meters, 1 in. and 1/2 in. (Sch. 11A, 1951). March 15.

X-ray Equipment. March 8.

## NEW ZEALAND

### HYDRO ELECTRIC DEPARTMENT.

Auxiliary generating sets, 925 kVA., two (Con. 169). Para., also Auckland, Christchurch, London, Paris, Washington, and Montreal. March 13.

Switchgear and steelwork, 110 kV. (Con. 167, 168). Specs. also Auckland, Christchurch. March 8.



## MARTIN WILSON BROS. PTY. LTD. 200-214 MARY STREET, BRISBANE

Queensland Distributors:  
**BLACK & DECKER (Aust.) Pty. Ltd.**, Portable Electric Tools.  
**TECALEMIT (Aust.) Pty. Ltd.**, Industrial Lubrication Equipment.  
**"MINTEX" BRAKE & CLUTCH LININGS**, for all Industrial Purposes. **"SERVEX" EQUIPMENT**.  
**HARRINGTON INDUSTRIAL PISTON RINGS** (up to 42in.).

Stockists:

"Herbrand" and other Engineers' hand tools, etc.

We are open to represent other factories as  
Merchant Distributors

## NEW TARIFF BOARD INQUIRIES.

The undermentioned list of subjects are at present under reference to the Board, in respect of which public inquiries will be arranged at a future date. It will assist the Board in making its arrangements if it knows—

- (a) the names of parties proposing to tender evidence at the inquiries,
- (b) particulars of requests that will be made and the exact nature of the goods to be covered by such requests, and
- (c) a very brief and broad outline of the nature of evidence to be tendered.

As it is proposed to distribute a circular giving particulars of intended requests, the information submitted should be as complete and concise as possible—particularly in the matter of description. For the same reason replies should be forwarded as early as possible.

### (1) Strychnine and Strychnine Salts:

What is the maximum quantity of—

- (a) Strychnine, and
  - (b) Strychnine Salts
- that should be contained in any individual container to permit, for Tariff purposes, of such goods being classified as packed for retail sale.

### (2) Chain Pulley Blocks:

What rates of duty should be imposed on chain pulley blocks imported into the Commonwealth of Australia.

### (3) Rubber Chemicals:

What rates of duty should be imposed on—

- Phenol B-Naphthylamine.
  - Mercaptobenzthiazole.
  - Mercaptobenzthiazole di Sulphide
- imported into the Commonwealth of Australia.

### (4) Controlling Apparatus:

What rates of duty should be imposed on apparatus for controlling the speed of sewing machines imported into the Commonwealth of Australia.

### (5) Catches for Ladies' Handbags and Wallets:

What rates of duty should be imposed on catches for ladies' handbags and wallets, imported into the Commonwealth of Australia.

handbags and wallets, imported into the Commonwealth of Australia.

### (6) Medical, etc., Apparatus:

What rates of duty should be imposed on anaesthetic and aspirator apparatus, breast pumps and apparatus for the treatment of obliterative vascular diseases imported into the Commonwealth of Australia.

### (7) Butyl Acetate:

What rates of duty should be imposed on butyl acetate imported into the Commonwealth of Australia?

### (8) Buttons:

(a) Whether in view of the present method of button production, it is desirable that the wording of any of the sub-items of Tariff Item 106(F) be amended; and

(b) What rates of duty should be imposed on buttons which are now charged with duty under Tariff Item 106(F).

### (9) Educational, Scientific and Cultural Material:

What rates of duty should be imposed on—

- (a) Maps of Australia and parts thereof covered by Tariff Item 344(A).
- (b) Oil and Water Colour Paintings covered by Tariff Item 410(B), and
- (c) Original Works of Art of Statuary or Sculpture less than £12/10/- in value ex Tariff Item 427(C).

These questions have been referred by the Minister in view of the draft agreement reached by the United Nations Educational, Scientific and Cultural Organisation in which contracting States are requested to undertake not to apply Customs duties on the importation of educational, scientific and cultural material.

### (10) Tariff Affecting the Automotive Industry:

(1) What Tariff Item or Items should be inserted in the Customs Tariff to take the place of Items already in the Tariff affecting the automotive industry?

(2) In the event of any new Item or Items being recommended by the Board, what rates of duty should be imposed under such Item

# W E M B L E Y

ENGINEERING & REFRIGERATING CO. PTY. LTD.

553-555 Church Street, Richmond, Victoria. Phone JB 2094

- Complete Engineering and Manufacturing facilities
- ★ ICE AND COLD STORAGE PLANTS
- ★ COOLING SYSTEMS
- ★ REFRIGERATION EQUIPMENT
- ★ STEEL TUBE COILS

## Coolmaster REFRIGERATION AND EVAPORATIVE COOLING EQUIPMENT

The COOLMASTER Evaporative Cooler occupies comparatively small space and is self-contained. The only moving parts are a fan and centrifugal pump circulating air and water. A substantial welded structure ensures a long working life.

COOLMASTER  
REFRIGERANT  
CONDENSER  
(Ammonia)

CAPACITY:  
50 Tons Refriger.  
DIMENSIONS:  
100" x 80" x 140"  
High.

The entire construction  
is rendered RUSTPROOF  
with GALVANITE by  
DIMET PROPRIETARY  
LIMITED.



## COOLMASTER Evaporative Cooling Towers

In Types and Models for:

- REFRIGERANT CONDENSING, Model CMC, 1-200 Tons.
- WATER COOLING, Model CMW, 8-200 G.P.M.
- DIESEL JACKET COOLING, Model CMD, 80-1,000 H.P.
- AIR AFTER-COOLING, Model CMA, 50-3,000 C.F.M.

# W E M B L E Y

ENGINEERING & REFRIGERATING CO. PTY. LTD.

553-555 Church Street, Richmond, Victoria. Phone JB 2094



# 32 YEARS OF GENERATOR PROGRESS by DURST MOTORS



The latest type in 1918. Built by Durst — some of these are still in use.

## DURST

We can now supply without delay this highly-efficient unit — DURST dependable generators — write or 'phone us your requirements.



1950. Still built by Durst, the latest and most efficient generator on the market to-day.

MOTOR AND ELECTRIC INDUSTRIES PTY. LTD.  
189-189b ST. JOHN'S ROAD, FOREST LODGE  
Telegraphic Address: "DURST," Sydney.      Telephones: MW 1470, MW 1755.

or Items in order to preserve, no far as practicable, the protective effect to the existing Item or Items which it is recommended should be replaced?

**(11) Expanded Ebonite Insulation Sheet:**

What rates of duty should be imposed on expanded ebonite insulation sheet imported into the

Commonwealth of Australia.  
**(12) Fish Oils:**

What rates of duty should be imposed on fish oils at present charged with duty under Tariff Items 228(A) (2), 229(I), 229(J), 230(B), 281(L), and 449(A) (2).

The term "fish oils" is not to be interpreted to include whale oil and seal oil.

### AUSTRALIAN PIANOS

#### AS GOOD AS IMPORTED INSTRUMENTS.

It was once supposed that all good pianos came from overseas. But it is time the fallacy was exploded, if only in justice to the piano-making industry in Australia.

More than 100 years ago the brothers James and Jabez Carnegie made in Melbourne what is believed to be, says an article in a recent issue of a Melbourne paper, the first piano built in Australia. The descendants of Jabez still make pianos at a flourishing factory at Richmond in that State. Four generations of craftsmen have served with this firm, which to-day also makes under licence for several famous overseas makers.

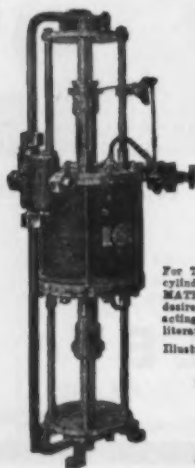
The hub of the Australian piano industry is Sydney where the Beale

factory occupies four and a half acres of the rambling industrial suburb of Annandale, employs 250 Australians, and claims to be the largest self-contained piano factory in the British Commonwealth. Founded by Octavius Charles Beale, this factory has made more than 75,000 pianos since its first saleable model of 1893.

It takes in iron ingots and tree trunks at one door and turns out finished pianos at another. This is a rare thing. Most factories are simply assembly lines for parts made elsewhere.

At Annandale, however, the only imported part is the "action"—the complicated mechanism connecting the back of the key lever to the hammer that strikes the string. Otherwise, the complete instrument is made on the spot.

Iron frames to withstand the multi-ton tension of the strings are cast from B.H.P. ore. Bass strings are spun with Fort Kambia copper,



**HYDRAULIC  
PRESSURE from  
your AIRLINE...**

**with the  
AIRHYDROPUMP**

For TESTING all types of castings, pressure vessels, gas cylinders, etc. **PRESSURE MAINTAINED AUTOMATICALLY.** Provides a small supply of liquid at any desired pressure up to 50,000 lbs. per sq. inch. Single-acting and double-acting models in 34 sizes. Write for literature.

Illustration shows double-acting model.

Agents in all States. Manufactured by **CHARLES S. MADAN & CO. LTD., England.**

Australian Agents:

**H. C. THORNTHWAITE & CO.**  
43 Margaret Street, Sydney. BX 3603

### ENGINEERS!

"We Give You the Tip" —→

The famous brand "Wimet" Tungsten Carbide tips and tools  
Now Available from Stock

Australian Agents:

**THOMPSON & WILLIAMS**  
28 MARKET STREET, MELBOURNE  
Telephones: MB 2121, MB 2122.



# T. MAIN & SONS PTY. LTD.

EST. 1860

Lambert and Baker Streets,  
North Richmond, E1, VICTORIA

## GENERAL IRONFOUNDERS

CUPOLA MANUFACTURERS

PATTERN MAKERS

### WE SPECIALISE IN:

Machinery, Refrigerator, Chilled Rolls, Semi-Steel and Nickel Chrome Castings, Diesel Engine Castings in High Grade Alloy Irons, Ni-Resist, Ni-Tenayl High Duty Irons up to 30 Tons Tensile.

SOLE AUSTRALIAN AGENTS FOR

## BALANCED BLAST CUPOLA

Phones: JA 4113, JA 4114

while the paper-thin veneers, which give the casework its finished glamour, are sliced from the butts of giant Queensland walnut trees.

True, the article says, the instruments so made are not of the highly aristocratic order one finds, or should find, on the concert platforms of capital cities. But they are fine instruments.

They are used in the Sydney Conservatorium of Music and many a concert pianist touring country towns would be delighted to find a good Australian instrument awaiting him.

### COPPER CONDUCTORS.

The S.A.A. announces the issue of a revised edition of its specification A.S. No. C.41, Bare Hard-drawn Copper Conductors (for overhead lines) and publication of a new specification, A.S. No. C. 306-1950, Covered Hard-drawn Copper Conductors (for overhead lines).

The 1930 edition of the A.S. No. C.41 was an endorsement of B.S. 125-1924, which has since been extensively revised. The latest edition of the British Standard was issued in 1947. The Association's Committee on Electric Wires and Cables, who have been handling this work, followed closely B.S. 125-1947, in the revision of A.S. No. C.41, and the Australian specification agrees in most respects. The main differences are the deletion of minimum lay ratio values and the adoption

of conductor sizes suitable to Australian requirements.

Since the elastic limit, modulus of elasticity, yield point or yield stress of non-ferrous metals are somewhat indefinite, the appropriate values for hard-drawn copper have not been included in this specification. For purposes of calculation, however, an approximate value for the modulus of elasticity has been given. Testing of elongation has not been prescribed, as compliance with the lapping test will ensure that the material is satisfactory in this respect.

The specification for Covered Hard-drawn Copper Conductors, A.S. N.C. 306-1950, provides for four standard types of service line conductors as follows:—Type A: Paper covered and double braided conductors, with red-lead impregnation; Type B: PVC covered conductors; Type C: Double braided conductors, with special quality bituminous impregnation; Type D: Triple braided conductors, with special quality bituminous impregnation.

It is emphasised that the covered conductors described above are not recognised by the E.A.A. Wiring Rules as affording 250-volt grade insulation. Nevertheless, the specification seeks, by prescribing in some detail the nature of the covering and the tests it must withstand, to ensure that it will have a reasonable life under service conditions.

Requirements for conductors are in line with those in A.S. No. C. 41-1950, Bare Hard-drawn Copper



"Check me over, Doc., I'm afraid I've been working too hard since they put in air conditioning!"

### WHAT happens when a plant is air conditioned?

On the human side, comfortable workers will be able to do more with less effort. They will be less likely to absent themselves. It will be easier to obtain staff. They will be less likely to move to apparently greener pastures.

Precise machinery will not be subjected to radical changes in temperature and humidity. It will be less likely to get out of adjustment. It will "sweat" less . . . corrode less. It will produce a more uniform product.

Air conditioning can keep raw materials uniform, too. And contribute to a more uniform product. Textiles, pharmaceuticals, paper and sweets (to mention a few) may be affected adversely by fluctuating temperatures and humidities. They may turn soft . . . may take on moisture . . . may "spoil."

Over-all, air conditioning removes many of the variables previously introduced by the passing of the seasons, hot spells, rainy spells and changing winds in industrial atmospheres. Why not let a Carrier representative explain the definite advantages and savings to be gained by using Carrier Air Conditioning?

**Carrier**

AIR CONDITIONING LIMITED

36-40 Bourke Street,  
East Sydney, N.S.W.  
Phone: FA 7144.

15-17 Lincoln Square,  
South Carlton, N.J.,  
Melbourne, Vic.  
Phone: FJ 4234.

Penney's Building,  
206-208 Queen Street,  
Brisbane, Qld.  
Phone: 8 8148.



- Scientifically heat-treated
- Accurate, fast running
- Withstand exacting conditions
- Safe

# Greg-Steel



## CIRCULAR SAWS AND KNIVES

A complete range is available for all trades—Cross-cut, Rip, Grooving and Clean Cutting, Shaper Collars, Drunk Saw grooving Combination Sets, Router and Dovetail Cutters, Planer and Buzzer Knives, Shaper Cutters and Moulding Form Cutters, Vertical Shaper Buzzer Heads. Unconditionally guaranteed to be of first-class material and manufacture.

MANUFACTURED BY  
**GREGORY STEEL PRODUCTS** PTY. LTD.

25 JOHNSTON STREET, COLLINGWOOD, VIC.



# LYSAGHT'S

100% AUSTRALIAN MADE, FROM AUSTRALIAN MATERIAL

Specify "LYSAGHTS" WIRE, WIRE NETTING, Etc.

<b>WIRE</b> Fencing and all other classes.	<b>WIRE NETTING</b> Black, Black Oiled and Galvanised.	<b>BARB WIRE</b> Twin and Special (Long Distances).
<b>WIRE NAILS</b> Brads, Panel Pins, Clouts, Slates' Nails, Staples.	<b>ZINC OXIDE (Dry)</b> All Grades.	

All the leading MERCHANTS, STOREKEEPERS and AGENTS sell our manufactures.

**LYSAGHT BROS. & COMPANY PTY. LIMITED**

Registered Office and Works:  
BLACKWALL PT. ROAD, FIVE DOCK, N.S.W.  
City Office: 17 BRIDGE STREET, SYDNEY, N.S.W.

## Chain for all Purposes

Crane and Pulley Block Chain, Coil Chain, Agricultural Chains, Saddlers' Hardware and Non-skid Chains, etc.  
Suppliers of Chain to Government Stores and Railways.

# BENNETT CHAIN CO. PTY. LTD.

Makers of Chain for All Purposes

ALFRED STREET, VALLEY, BRISBANE, N.I., QUEENSLAND.

REPRESENTATIVES:

W.A.—T. B. LEWIS, 140 Murray St. PERTH. S.A.—S. W. SCRIMGOUR, Industrial Buildings, King William St. ADELAIDE. Tas.—ENSLLOW & ENSLOW, 64 Liverpool St. HOBART. N.Z.—W. A. JOHNSTON, 54 Customs St. AUCKLAND. N.S.W.—HOWARD VAUGHAN (AUST.) PTY. LTD., 282 Kent St. SYDNEY.

## THE PINNACLE OF ACHIEVEMENT IN AUTOMOTIVE VALVE ENGINEERING

D.E.C. BRAND AUTOMOTIVE  
STATIONARY AIRCRAFT

# VALVES

Made in Australia from 12% Silchrome  
with HIGHER CHROME CONTENT



— BY —  
**DREADNOUGHT VALVE PTY. LTD.**

49 Ralph Street, Alexandria, N.S.W. 'Phone: MU 2501.

Distributors: C. & J. GEARS & AUTO PARTS PTY. LTD.  
6 Pelican Street, Sydney

Conductors, but the range of sizes has been modified to provide for those in use for service lines.

The specifications are on sale at the offices of the Standards Association of Australia.

## DUNLOP 2ND ANNUAL ART CONTEST.

**£1,000 IN PRIZE MONEY OFFERED.**

In honour of the Commonwealth Jubilee celebrations, Dunlop Rubber Australia Limited has launched their second annual contest for the best Australian contemporary art. The first contest, organised early in 1950, was an outstanding success, with over 800 artists competing from all States. This year the awards offered are increased and total £1,000—one of the largest art prizes in the world. The first prize is £300 and there are eleven other prizes, ranging from £200 to £25. A group of art experts, representing all schools of art, will advise the company on the selection of prize winners.

With the exception of pure portraiture, all schools will be eligible and work in the individual style and techniques of the entering artists is sought. The judges will make the awards purely on aesthetic merit.

It is not necessary, or even desirable, that the artists should use subjects with any relationship to Dunlop products. In fact, they will be left as wide a field as possible. A choice of subject matter, i.e., landscape still life, will be represented. Briefly, the company will aim at as varied a collection as is possible in the space of twelve works.

Some of the selected works will show in the well-known Dunlop Annual Calendar, as was last year's collection, and the calendar will be produced in high quality full colour


letterpress. At a later date reprints will be made available for sale to the public. This will provide an important filip to the artists, who will be gaining a permanent place in scores of thousands of Australian homes, besides being constantly before a large section of the community for the twelve months of the calendar's life.

State galleries who desire a loan of the complete collection will be provided with the opportunity to show a concise cross section of Australian art, and it is already proposed to send the series on tour of country towns. At a later date this collection, or a series of collections, will be sent overseas to further publicise Australian art. Entries will be received at centres appointed in each State, these addresses are given on entry forms, which are at present in the course of preparation. Final judging will take place between 6th and 12th May and the winning entries and a selection of the remaining works will be kept on special exhibition at Tye's Art Gallery, Melbourne, for a period of one week from May 14th, during which time the works not in receipt of an award will be on sale to the public. This means that many of the entrants will obtain a showing of their work. As soon as possible after judging the winners will be notified.

All States are included in the scheme, although this does not necessarily mean that all States will be represented in the final collection; this will be dependent entirely on the merit of the works chosen. The judging committee will be concerned only with the actual selection and placing of the winning entries.


Entrants must obtain an entry form from State galleries, societies or other art bodies, or from any Dunlop branch in principal cities. These will be ready in a week or so and the coupon from this entry






## HEATING ELEMENTS

IMMERSION HEATERS  
STRIP HEATERS  
HOT PLATES  
AIR, OIL, WATER  
PLATEN HEATERS



**GRIMWOOD ELECTRICAL PRODUCTS PTY. LTD.**  
ELECTRICAL HEATING ENGINEERS  
Anderson Street, Botany, N.S.W. Telephone: FJ 1752.

Interstate: C. F. Willers, Brisbane, Q.; A. E. Ackland Pty. Ltd., Melbourne, Vic. and Tas.; Topp & Farmer, Adelaide, S.A.; Radio & Associated Industries, Perth, W.A.



## ENGINE MANUFACTURERS

ALLOW US TO QUOTE YOU  
SPECIAL CONTRACT PRICES FOR

## AMAL CARBURETTORS AND CONTROLS

---

**R. V. BRISTOL & CO. PTY. LTD.**  
386 Bourke Street, Melbourne. 85 Bridge Road, Glebe, N.S.W.  
Phone: MU 2262. Phone: MW 2716.  
And at ADELAIDE • BRISBANE • PERTH • HOBART  
Sole Australian Representatives  
OF  
**BIRMINGHAM AMAL LTD. ENGLAND**  
MAKERS OF FINE CARBURETTORS

form, signed by the artist, must accompany entry or entries. In order to allow time for the works to be grouped for judging, artists must submit their entries before 25th April, 1951.

The last contest was an outstanding success. If this second scheme is successful annual Dunlop calendars would provide a year by year catalogue of Australian art. As it is the Dunlop contest is on the way to becoming a regular art institution. Also, considering the excellence of production, and the fact that this project is the only one

of its kind in Australia, artists will appreciate this opportunity to publicise their works.

Dunlop Rubber Australia Limited hopes that art bodies in this country, by supporting and co-operating in this contest, will set the seal on a venture which can do much good work in further establishing and vitalising the field of Australian art.

All further information may be obtained direct, by writing only, from Dept. 42, Dunlop Rubber Australia Ltd., 108 Flinders Street, Melbourne.

### 1950/51 F.B.I. REGISTER.

The F.B.I. Register is unique amongst industrial directories published to promote Britain's export trade in that it provides a substantial cross-section of the most important producers of British goods in a very wide range of industry. It is the only authorised directory of this important association of British manufacturers and the information contained in it is compiled by the publishers in close collaboration with the F.B.I. It

being a requirement that only goods of members' own manufacture are referred to in it. The book is compiled and classified for quick reference with major instructions and cross-references in English, French and Spanish.

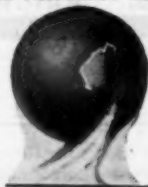
In its new form the 1950-51 F.B.I. Register now comprises seven sections: (1) Products and Services: Which is a classified buyers' guide, listing over 6,000 F.B.I. member firms under more than 5,000 alphabetical trade headings; (2) Advertisements; (3) Addresses: An alphabetical directory of all

## MINERALS PTY. LTD.

318 Botany Road, Alexandria, Sydney, N.S.W.  
Currie Street, Adelaide, S.A., and Perth, W.A.

Cable Address: "MINERALER," all States.

In Association with



## MINERALS (VIC.) PTY. LTD.

Ingles Street West, Port Melbourne, Vic.  
And 27 Elizabeth Street, Hobart, Tas.

Industrial Earths and Wood Flour Millers.

*Mineral Earths & Pigments*

**TALC**

*For all Industries*





Write for the "MARBRITE" PRICE FOLDER, containing full price lists, specification sheets, tolerance tables, etc.

# 'MARBRITE' BRIGHT STEELS

"MARBRITE" BRIGHT STEEL is manufactured in completely modern plant, to standard specifications, from specially prepared raw materials. Metallurgically controlled on a commercial basis, through all processes, "MARBRITE" BRIGHT STEEL can be supplied in a wide range of grades and in sizes and sections to suit most needs of manufacture.

The following classes and grades are standard:

## BRIGHT MILD STEEL —

- GRADE 1 — Shafting.
- GRADES 1B, 1A — High Tensile Shafting.
- GRADE 2 — Semi-Freecutting Steel.
- EXTRA SUPER — Freecutting.
- LEADER — Freecutting for specialised purposes.
- GRADE CH2 — Case hardening.

## PRECISION GROUND —

Supplied in all "Marbrite" Grades, to Standard or Special Tolerances.

## BRIGHT ALLOY STEELS —

- "MARBRITE" L5 — 3 per cent. Nickel — Case Hardening.
- "MARBRITE" Q5 — Nickel Chrome — Case Hardening.
- "MARBRITE" L10 — Nickel Molybdenum — Case Hardening.
- "MARBRITE" Q7 — Nickel Chrome — High Tensile.
- "MARBRITE" R4 — Nickel Chrome Molybdenum — High Tensile.

## AIRCRAFT STEELS —

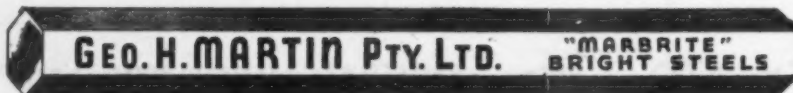
To Standard Specifications

"MARBRITE" Rounds, in Grade CH2 and other suitable grades, can be supplied oversize to provide for grinding, after heat treatment.

Special Sections — A comprehensive range is available against order.

Precision ground bars are manufactured to Standard tolerances with a wide range of Round sizes from 1/16 in. to 6 in. diameter. Table A tolerances are within +.000—-.002 down to within +.00025—-.00025.

PLAN YOUR PRODUCTION WITH "MARBRITE" BRIGHT STEELS



"Marbrite House"

Telephone: MJ 4341

SYDNEY, N.S.W.

32-38 Bathurst Street

Telephone: MJ 4341

F.B.I. member firms with their full addresses, telegraphic addresses, telephone numbers, list of products, and in many cases their home and overseas branches, agencies, etc.;

(4) Trade Associations: Classified alphabetically with full addresses; (5) Brands and Trade Names: Listed alphabetically for rapid identification of the products concerned and their manufacturers; (6) Trade Marks: Showing reproductions of several hundred regis-

tered trade marks classified by trade categories for easy finding of sources of manufacture; (7) Addenda: Covering the products and addresses of new members elected since the main sections went to press.

**L. T. KENNETT**  
Improved Patent, 14688

## LADDERS

for  
BUILDERS,  
PAINTERS,  
and  
HOME  
USE,  
also  
STEPS,  
TRESTLES,  
GARDEN  
SEATS,  
HAND  
TRUCKS.

Illustrated Booklet Free on Request.

**L. T. KENNETT LADDERS PTY. LTD.**  
26, 27, 28 CITY ROAD  
DARLINGTON, SYDNEY  
Estd. 30 Years. Tel.: MX 8974.

Produced under an arrangement with the Federation of British Industries, the new F.B.I. Register will have world-wide distribution to importers, buyers, Trade Commissioners, Chambers of Commerce, etc., and will provide valuable support for the export drive.

Contents include: Foreword by the President, Sir Robert Sinclair, K.C.B., K.B.E.—the Federation of British Industries. Its Aims and Activities; Overseas Organisation and Trade Openings Department; Regional Organisation of the F.B.I. Products and services: Member associations classified by industries. Advertisements. Addresses: Alphabetical directories of the names and addresses of member firms. Trade associations. Brands and trade names with indication of products and their manufacturers —also trade names.

"F.B.I. Register of British Manufacturers" — 1950-51. 23rd Edition. Published for the Federation of British Industries, by Kelly's Directories Limited and Hiffe and Sons Limited, Dorset House, Stamford Street, London, S.E.1. Published November, 1950, at 42/- (Post Free). Size 9 1/2 in. x 7 1/2 in. 852 pages. Bound full cloth.

## Late Open Tenders

### COMMONWEALTH

#### POSTMASTER-GENERAL'S DEPARTMENT.

Apparatus Racks (Sch. N.S.W. 510). March 23.  
Battery Cabinets and Spare Parts Cabinets (Sch. N.S.W. 509). March 23.



## LATE OPEN TENDERS—Contd.

Medium Frequency Broadcasting Transmitters and Assorted Equipment (Sch. C.6498). May 3.

### DEPARTMENT OF WORKS AND HOUSING.

Automatic Control, for Heating System, for G.P.O. Buildings, Adelaide. March 20.

Passenger-Bed Lift, for Canberra Community Hospital. April 10.

### DEPARTMENT OF SUPPLY.

Clothes Wringers. March 15.  
Phillipine Lighter (with or without refrigeration). Purchase from Garden Island. March 22.  
Power Saw Blades. Purchase from Maribyrnong, Vic. March 8.

## NEW SOUTH WALES

DEPARTMENT OF MAIN ROADS.  
Galv. Iron Bins. March 6.

### DEPARTMENT OF SUPPLY.

Aircraft Rocket Pins, 125,000. March 8.

Exercise Books, 14,000. March 6.  
Identification Plates, 10,000, for R.A.A.F. March 8.

Milling Cutters, Inserted-type, and Spare High-Speed Steel Blades. March 8.

Milling Machine, Semi-auto. March 6.

Precision Toolroom Lathe. March 6.

Portable Fuseboards. March 16.  
Power Transformers and Chokes. March 16.

Twine (600 lb.). for Sewing Machines, 6 cord. March 6.

### SYDNEY COUNTY COUNCIL.

Current Limiting Reactors, for Pymont "B" Power Station (Spec. 1541). April 5.

Direct Current Switchgear, for Pymont "B" Power Station (Spec. 1534). March 29.

Industrial Shunting Locomotives, Diesel, Electrical (2), for Pymont "B" Power Station (Spec. 1542). April 12.

Metalclad Switching Equipments, 5,000 volt, 250 MVA, for Darlinghurst Sub-station (Spec. 1518). April 10.

Miscellaneous Pumping Sets, for Bunnerong "B" Power Station (Spec. 1543). March 29.

Overhead Ash Handling Cranes, Electrically Operated (2), for Bunnerong "B" Power Station (Spec. 1481). March 29.

### MISCELLANEOUS.

Compressor, mounted on 2 Pneumatic Tyred Wheels, equipped with Concrete Breaker, Rock Drill and Clay Spade, for Municipality of Queanbeyan. March 22.

Motor Patrol Grader, Diesel Powered, fitted with "V" Type Scarifier, for Shire of Bland. March 12.

Pneumatic-tyred Tractor Wheel Scoop, 2 cub. yd. cap.; Arc Welder, Portable, Petrol-driven, of 250 amp., and Two-wheel Trailer; Front-End Loader, with approx. 2 1/2 cub. yd. Shovel; Pneumatic-tyred Car-

van, 2-Berth, for Bibbenlake Shire Council. March 16.

## QUEENSLAND

### GOVERNMENT RAILWAYS DEPARTMENT.

Oil Storage Tanks. March 19.

### STATE ELECTRICITY COMMISSION.

Generating Sets, Steam-driven, 150 pounds per sq. in. March 21.  
Oil Circuit Breakers (Spec. 218). Extended to March 14.

## SOUTH AUSTRALIA

### GOVERNMENT RAILWAYS DEPARTMENT.

Mobile Crane, Pneumatic-tyred, Petrol-Electric, Full Circle, Slewing. March 8.

### SUPPLY AND TENDER BOARD.

Conveyor Chains. April 2.  
Four Cutter Planing Machine, 9 in. x 3 in. April 2.

Motor Generator Set, 600 kW. March 5.

Vertical Twin Tandem Band Saw; Horizontal Band Sash, Resaw. April 2.

### DEPARTMENT OF RAILWAYS—NEW SOUTH WALES.

TENDERS enclosed in sealed envelopes which must be endorsed "TENDER FOR . . .", addressed to the Commissioner for Railways, 19 York Street, Sydney, will be received on the dates and times shown for the services specified. Tenders may be lodged in the Tender Box, Room 504A, 5th Floor, Railway House, 19 York Street, Sydney, or posted to that address.

Wednesday, 4th April—  
12 noon.

For manufacture, delivery and erection of one 15-ton Electric Overhead Travelling Crane for New Blacksmith Shop, Clyde Wagon Works, Sydney. Specification No. 540, price 5/- per copy, obtainable from Chief Civil Engineer, 1st Floor, 18 York Street, Sydney.

Wednesday, 30th May—  
12 noon.

For the design, fabrication, supply and delivery, F.O.R., of Steelwork for Goods Sheds at Darling Harbour and Cooks River. Sets of plans, Specification No. 542, and conditions of contract may be purchased at 2/6 per set, or sets may be loaned to contractors for a short period without charge, and tender forms obtained from Chief Civil Engineer, Room 905, 19 York Street, Sydney.

No tender necessarily accepted. Make cheques payable to Commissioner for Railways. Any tender unaccompanied by deposit, as provided in conditions of contract, may be rejected.

W. A. ANDERSON,  
Secretary for Railways.

# J. Gadsden Pty. Ltd.

*Manufacturers of*

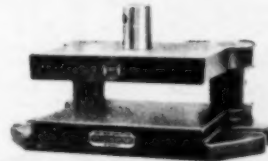
PRINTED, AND PLAIN  
CANS. — STEEL CON-  
TAINERS. ALSO, CANVAS  
GOODS, CALICO AND  
HESSIAN BAGS

*Factories at*

AUSTRALIA—  
Melbourne, Sydney, Adelaide,  
Brisbane, Hobart and Albany.  
NEW ZEALAND—  
Wellington, Christchurch, Aus-  
land, and Dunedin.

Head Office — Abbotsford Street, West Melbourne.

— JOHN HEINE —



## PRECISION DIE SETS FOR PRESS TOOLS Immediate Delivery

Standardized Units  
ensure speedy and  
accurate delivery.

Write for illustrated Bulletin 492

## JOHN HEINE & SON PTY. LTD.

ALLEN STREET, LEICHHARDT, SYDNEY, N.S.W.

Melbourne, Adelaide and Perth: McPherson's Ltd.

Brisbane: Engineering Supply Co. of Aust. Ltd.

New Zealand: John Chambers & Son Ltd.



# "ZERISTO"

Cork Board, Cork Sectional Pipe Covering, Granulated Cork

**W. H. BREWER PTY. LTD.**

22 Blackwood Street, North Melbourne. FJ 2058, FJ 6452.

## INDEX OF ADVERTISERS

Vol. XXXV - No. 1822 . . . MARCH 3, 1951.

Page.		Page.		Page.	
A. & A. Eng. Co.	40	Gibson, Battle & Co. Limited	18	Olympic Metal Industries	73
Acta Pty. Ltd.	41	Gilbert Lodge & Co. Ltd.	31	O'Reilly, Charles	72
Advance Machinery Pty. Ltd.	46	Goold & Clyde Wilson Reid Pty. Ltd.	78	Ormiston Rubber Co. Pty. Ltd.	79
Advans Tyre & Rubber Co. Pty. Ltd.	27	Gordon Bros. Pty. Ltd.	69		
Agnew, W. A. L., & Son Pty. Ltd.	72	Greatrex, B. V. R. Pty. Ltd.	74	Parco (A'asia.) Co.	35
Alger, C., & Sons	35	Gregory & Hickey Pty. Ltd.	54	Paris Exhibition	63
Amplion (A'asia) Pty. Ltd.	56	Gregory Steel Products Pty. Ltd.	86	Patience & Nicholson Ltd.	55
Anchor Eng. Co. Pty. Ltd.	56	Griffith, Hassel & Griffith	64	Phillips, Ormonde, Le Plastrier & Kel-	64
Andell, Reid, Pty. Ltd.	66	Grinwood Electrical Products Pty. Ltd.	87	son	
Associated Power Seals	93	Gutwirth & Sons	59, 56	Power Grip Woven Belt Co.	66
Austral Rock Milling Pty. Ltd.	72			Presha Eng. Co. Pty. Ltd.	72
Australian Forge & Eng. Pty. Ltd.	47	Harrington, W. A., Pty. Ltd.	62	Proud Bros.	24
Australian Gaslight Co.		Harrisons Ramsay Pty. Ltd.	31	Purvis-Glover Pty. Ltd.	41
Australian General Electric Pty. Ltd.	9, 35	Heine, J., & Son Pty. Ltd.	37, 89		
Australian National Airways, Instrument Division	96	Henderson's Federal Spring Works Pty. Ltd.	51	Qualos Sales Pty. Ltd.	79
		Hipkiss Sales (A.) Pty. Ltd.	14		
B.S.F. Pty. Ltd.	25	Hipsleys Ltd.	57	Raetz, C. B.	29
Ballarat Litho. & Printing Co. Pty. Ltd.	39	Hobson Eng. Co.	38	Randle Photo Engraving Co. Pty. Ltd.	39
Bennett Chain Co. Pty. Ltd.	86	Hordern, C. H., & Co.	40	Raynors Pty. Ltd.	61
Bodington, R., Pty. Ltd.	35	Hoskins Eng. & Foundry Pty. Ltd.	92	Roberts, H., & Co.	40
Boss Electrical Mfg. Co.	81	Hughes, R., Pty. Ltd.	76	Robertson & Lansley Pty. Ltd.	69
Bradshaw Automatics Pty. Ltd.	76	Hurley & Dewhurst Pty. Ltd.	71	Rola Co. (Aust.) Pty. Ltd.	21
Brewer, W. H., Pty. Ltd.	90			Rowe, H., & Co. Pty. Ltd.	10
British Optical Co. Pty. Ltd.	65	Independent Pneumatic Tool Co.	95		
British Timken Ltd.	9	Industrial Service Engineers Pty. Ltd.	27	Selex Decal Pty. Ltd.	7
British Xylonite (A.) Pty. Ltd.	82	International Business Machines Pty. Ltd.	42	Servian Machine Tools (A.) Pty. Ltd.	98
Bristol, R. V., & Co. Pty. Ltd.	87			Sheraton, G. L.	83
Brook, J., & F. Bros. Pty. Ltd.	61	John, M. E. Ltd.	24	Silicate & Dolomite of Aust. Pty. Ltd.	85
Brown, E. T., Ltd.	51	Jones & Rickard Pty. Ltd.	41	Skinner, W. R.	57
Brown, T. C., & Co. Pty. Ltd.	58	Jones Bros. Coal Pty. Ltd.	72	Smith Bros. Pty. Ltd.	51
Bryant Bros. Pty. Ltd.	74			Sortergraf Co.	36
		Kennett, L. T. Ladders Pty. Ltd.	88	Spurway, Frank G., Pty. Ltd.	11
C.C. Engineering Industries Ltd.	99	Kerry's G. B., Limited	12	Steen, W. B., Pty. Ltd.	58
Cable Makers (Australia) Pty. Ltd.	80	Kirby, J. N., Merchandising Pty. Ltd.	23	Stowe Electric Pty. Ltd.	58
Camelec Limited	25			Swift & Company Limited	29
Carr Fastener Co. of Aust. Ltd.	6	Lawrenson, R. H., Pty. Ltd.	94	Synchrotrac Instrument Co. Pty. Ltd.	50
Carrier Air Conditioning Ltd.	65	Lempiere, O. T., & Co. Ltd.	3		
Cartwright, C. F.	84	Leo Rogaly and Lewis Pty. Limited	50	Taloi Industries Pty. Ltd.	56
Central Motor Eng. Co. Pty. Ltd.	62	Liberty Motors (Aust.) Pty. Ltd.	65	Taylor & Wearing	39
Churchley, R. B., Pty. Ltd.	38	Lismore Chamber of Commerce	39	Tensalloy Precision Castings	30
Claude Neon Ltd.	52	Ludowici, J. C., & Son Ltd.	97	Thom, A., Limited	69
Cleveland Machinery Co. Pty. Ltd.	30	Lysaght Bros. & Co. Pty. Ltd.	86	Thompson & Williams	84
Code, F. W.	58			Thompsons (Castlemaine) Ltd.	8
Connaghan, Robert A., & Company	42	Main, T., & Sons, Pty. Ltd.	85	Thornthwaite, H. G., & Co.	38, 56, 64, 84
Cooke, S., Ltd.	70	Martin, G. H., Pty. Ltd.	88	Tinsley, Eliza, Pty. Ltd.	59
Crest Chemical Co. Pty. Ltd.	54	Martin Wilson Bros. Pty. Ltd.	83	Torold Industrial Supplies Pty. Ltd.	58
Crossale, W. G., & Co. Pty. Ltd.	38	Maase Batteries Pty. Ltd.	39		
		Mathews, E. J., Pty. Ltd.	39	Van Dorn Portable Tools	43
Davies & Collison	68, 70	McKinlay, Fletcher Pty. Ltd.	76	Vial, Frank, & Son Pty. Ltd.	71
Delta Woodturning Co.	51	McLellan, W. J., & Co. Pty. Ltd.	34		
Don Metalcraft Co.	81	Mechanical Handling Ltd.	100	Walder, S., Pty. Ltd.	41
Dreadnought Valve Pty. Ltd.	86	Meggitt Ltd.	39	Warburton, Franki Ltd.	53
Dunkerley Hat Mills Ltd.	2	Melbourne Wire Works	36	Warman & Douglas	76
Dunlop Rubber (Australia) Ltd.	15	Merlin Industrial Electroplaters	41	Warren & Brown Pty. Ltd.	7
Durat Motor & Electric Industries Pty. Ltd.	84	Metal Products Pty. Ltd.	42	Waters, E., & Sons	70
		Mica & Insulating Supplies Co. Pty. Ltd.	45	Welded Products Ltd.	67
Efco Mfg. Co. Pty. Ltd.	91	Miller & Co.	87	Wells, W. H., Pty. Ltd.	36
Engineering & Industrial Supplies Co.	54	Minerals Pty. Ltd.	40	Welsh, J., Pty. Ltd.	73
Excelsior Supply Co. Pty. Ltd.	74	Modern Tools Pty. Ltd.	8	Wembley Eng. & Refrigerating Co. Pty. Ltd.	83
Eyelets Pty. Ltd.	69	Monosteel Hi-Lift Electric Hoists	12	Wernard, J., & Co.	60
		Monsanto Chemicals (Australia) Pty. Ltd.	4	Wessberg & Tulander Pty. Ltd.	17
F.R.S. Ideal Spring Co. Ltd.	68	Mote Ladders Pty. Ltd.	42	West Footscray Eng. Works Pty. Ltd.	24
Farrer, J. H., & Co. Pty. Ltd.	44	Munday, Jas., & Co.	92	Weston's Pty. Ltd.	16
Ferro Enamels (A.) Pty. Ltd.	3, 44	N.S.W. Government Railways	89	Whitlaw Springs Pty. Ltd.	25
Fordigraph Co. (Aust.)	77	Newbould General Refractories Ltd.	73	Wilcoator Mfg. Co. Pty. Ltd.	29
		Newton, P. M., & Son	68	Wilson & Gilkes	40
G.M.F. Electric Motors Pty. Ltd.	61	Nicholson & Wallbank	92	Witzig, P., & Co. Pty. Ltd.	72
Gadsden, J., Pty. Ltd.	89	Nonporite Pty. Ltd.	80	Woodward & Thurston Pty. Ltd.	80
Garrett, Davidson & Matthey Pty. Ltd.	68	Norris, J., & Co.	40	Wormald Bros. Industries Limited	5
Gayfer, G. R., & Co. Pty. Ltd.	59	Noyes Bros. (Melbourne) Ltd.	13	Wright & Co.	56
		Oakley, J., & Sons Ltd	94	Yannoulats, Emm. (Overseas) Pty. Ltd.	60





# DIE CASTINGS

• **GRAVITY**

ALUMINIUM  
ALLOY

• **PRESSURE**

ZINC BASE, BRASS  
& ALUMINIUM

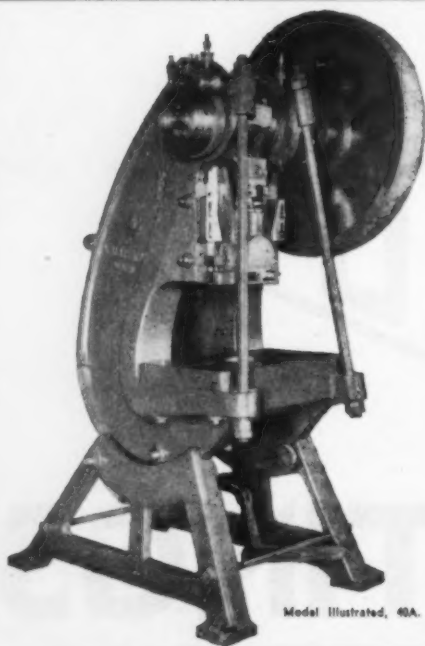


*Enquiries Invited —*

**THE EFCO MFG CO. PTY. LTD.**

108 PRINCES HIGHWAY, ARNCLIFFE, N.S.W. Telephone LX1231





Model Illustrated, 40A.

## "WALLBANK" POWER PRESSES

- ♦ Precision Built
- ♦ Heavy-Duty Inclined Cast Body
- ♦ Larger Die Space
- ♦ Early Delivery

DESIGNED AND MANUFACTURED IN THE WORKS AND FOUNDRIES OF

### NICHOLSON & WALLBANK

Head Office: 87 Parramatta Road, Auburn, N.S.W. 'Phone: UX 7607.

Branch Office: 8 Nelson Street, Annandale, N.S.W. 'Phone: LA 2437.

INQUIRIES INVITED.

WRITE: 8 NELSON STREET, ANNANDALE, N.S.W.

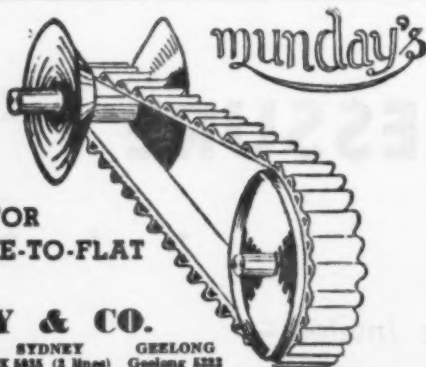
## MUNDAY'S

FOR  
VARIABLE  
SPEED DRIVES  
"RIPPLE"

LEATHER BELTS FOR  
VEE-TO-VEE & VEE-TO-FLAT  
ARRANGEMENTS.

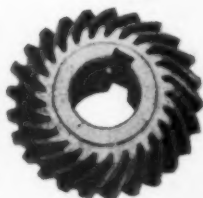
**JAS. MUNDAY & CO.**

MELBOURNE SYDNEY GEELONG  
'Phone: MU 6015 (4 lines) BX 5035 (3 lines) Geelong 5333



## SERVICE





## HAVING TROUBLE WITH BEVEL GEARS? THEN CHANGE TO **SPIRAL BEVELS**

Only *SPIRALS* have these advantages:

- As many as 5 teeth always in mesh, giving smooth, quiet action, and also
- reduces working load on teeth.
- Localised tooth bearing, allowing greater tolerance in assembly.
- Curved teeth keep lubricants between mating surfaces.
- The 20° long-addendum tooth form prevents interference when the pinion has as few as 6 teeth.

Capacity for SPUR and CLUSTER GEARS to 8in. diam. done by the FELLOWS METHOD.

REMEMBER! These gears actually **COST NO MORE** than straight bevels.

RANGE:  $\frac{1}{2}$ in. to 3 $\frac{1}{2}$ in. diam. 12 D.P. to 50 D.P. 12-teeth pinions to 100-teeth crown wheels.

**G. L. SHERATON**

MANUFACTURING AND GENERAL ENGINEER.



445 HEIDELBERG ROAD,  
FAIRFIELD, N.20, VICTORIA

TELEPHONE: JW 4752.

ASSOCIATED  
POWER  SEALS

**MAKE  
GASKETS**

**HEAD OFFICE : 200 BAY ST. PORT MELBOURNE**

• AIRCRAFT • MARINE • AUTOMOTIVE • INDUSTRIAL GASKETS • ACCESSORIES MANUFACTURERS •



**COATED ABRASIVES**

**OAKLEY**

**EMERY • WELLINGTONITE**  
(ALUMINOUS OXIDE)

**AND**  
**CARBORUNDUM CLOTH**

*In Sheets, Rolls, Belts, Discs & Shapes*

**FOR ALL**  
**METAL & ENGINEERING**  
**TRADES**

*Factory Representatives :*

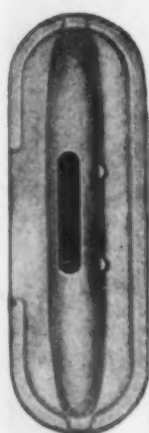
**VICTORIA & TASMANIA**  
HAROLD J. BEER  
Askew House, 364 Lonsdale Street,  
MELBOURNE

**NEW SOUTH WALES**  
FREDERICK R. LESSELLS  
12-14 Chippen Street, Chippendale,  
SYDNEY

**SOUTH AUSTRALIA**  
ARTHUR M. HALL, LIMITED  
Reid House, Featherstone Place,  
ADELAIDE

**QUEENSLAND**  
E. A. ANDERSEN  
356-358 Queen Street,  
BRISBANE

**WESTERN AUSTRALIA**  
JOHN LEONARD  
890 Hay Street,  
PERTH



# DIECASTINGS

**Save cost because they  
save time, metal  
machining and polishing**

*Consider what these factors  
mean to your production. . .*

VACUUM CLEANER PARTS  
here depicted are the base,  
swivel joint and shoulders of the  
swivel floor nozzle, end castings  
for the motor, and coupling  
pieces for brush attachments.  
Pressure diecast in zinc or alu-  
minium alloy they require very little  
finishing work after leaving the  
dies.



# R. H. LAWRENSEN PTY. LTD.

Works and Office : BIRNIE AVENUE, LIDCOMBE, N.S.W. Telephone : UX6948 (3 lines)



# *Thor* presents the smallest GEM in the *Silver Line*\*



*smaller . . . lighter . . . more powerful  
than any other 1/4" drill in the field!*

Thor is now shipping from the assembly lines of its great new Silver Line, this smallest, lightest, most powerful, and highest quality 1/4" standard duty portable electric drill ever built!

It weighs only three pounds and is only 7 1/8 inches long—yet this small drill gives you power unmatched by any other tool in its class . . . plus all the features of Thor's amazing Silver Line,

including die cast housings, ball bearings throughout, Heli-Coil thread inserts, etc. Available in seven drilling speeds, ranging from 550 to 5000 R.P.M. See your Thor distributor today for a convincing demonstration, or write for Silver Line Catalog E-2. Independent Pneumatic Tool Co., 330 West 42nd Street, New York 18, N. Y., U.S.A.

DRILLS • SANDERS  
POLISHERS • GRINDERS  
IMPACT WRENCHES

Screwdrivers, Nut Setters, Saws,  
Hammers, Tappers, Valve Shops,  
Fender Hammers

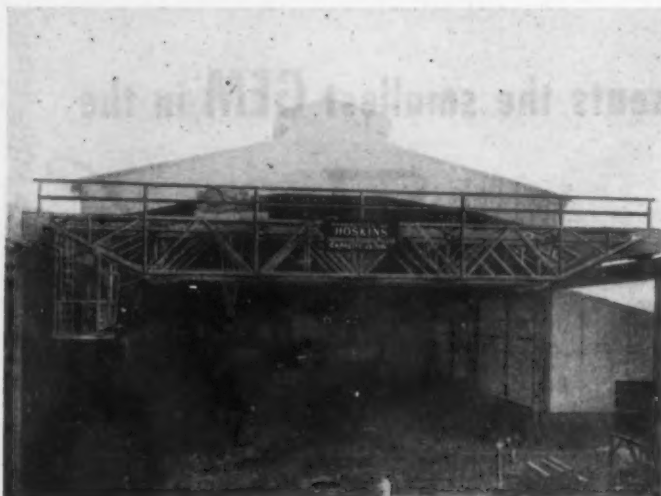
*Distributed when available by:*

WESTERN MACHINERY CO., LTD., 494 Murray Street, Perth  
GIBSON, BATTLE & CO., LTD., 535 Kent Street, Sydney  
PASCOE & CO., LTD., 282 Port Road, Woodville S. A.  
FRANK VIAL & SONS, PTY., LTD., 369 Queen Street, Melbourne

# *Thor* PORTABLE POWER TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS.





25-ton 60ft. Span Electric Overhead Travelling Crane.

## HOSKINS

*are manufacturers of a wide range of industrial machinery, including:*

CRANES OF ALL TYPES  
WINCHES AND WINDERS  
BOILER INSTALLATIONS  
MINING EQUIPMENT  
ELEVATORS AND CONVEYORS  
ROTARY KILNS  
ABATTOIR MACHINERY  
SPECIAL MACHINERY  
Etc.

## HOSKINS ENGINEERING AND FOUNDRY PTY. LIMITED

494 MURRAY STREET, PERTH, WESTERN AUSTRALIA

*Precisely speaking!*

**IN THE MATTER OF INDICATION  
RECORDING AND CONTROL..**

Your process depends upon these three factors and your instruments must always "Speak precisely." An inaccurate indication can be a costly business, causing loss of production, quality and efficiency. Make sure of your process by being sure of your instruments. Have them checked periodically at any of the following addresses:



*Service and Assembly Agents to Negretti and Zambra, London*

**A.N.A.**  
**INSTRUMENT DIVISION**

SYDNEY . . .	Margaret Street, Sydney . . .	Phone BX 3771
MELBOURNE . . .	Aerodrome, Essendon . . .	Phone FU 3731
ADELAIDE . . .	Airways House, North Tce, Adelaide . . .	Phone C 6134
BRISBANE . . .	Rocklea East, Brisbane . . .	Phone JY 4437
PERTH . . .	Aerodrome, South Guildford . . .	Phone ML 453



THE ONLY THING TO  
REPLACE LUDOWICI  
BELTING IS MORE—

**LUDOWICI LIFETIME LEATHER BELTING**

**SAVES** ON INITIAL COSTS **SAVES** ON MAINTENANCE

**PIONEER LEATHER BELTING features:-**

- "WET-FRAMED" STRETCHED
- UNIFORM QUALITY
- "DEEP WELD" ADHESIVE
- SUPERIOR CO-EFFICIENT OF FRICTION
- LONG LIFE.

No belting has more proved, practical applications than PIONEER BELTING, a name famous in Australia for 92 years.

Pioneer Belting often saves money on "initial costs" and keeps saving it by providing continuous years of trouble-free transmission.

*The only replacement for Pioneer Belting is more Pioneer Belting.*



**J. C. LUDOWICI & SON LTD.**

117 YORK ST., SYDNEY, N.S.W. 20-26 QUEEN'S BRIDGE ST., STH. MELBOURNE, VIC.

OTHER LUDOWICI LINES OF EQUIPMENT INCLUDE:- Rubber Belting, Conveyor and Elevator Belting, Round Leather Belting, Textile Lathens, Belting Accessories, Leather Packings, High-Speed Grinder Belts, V-Belt Drives, Industrial Clutches, Plain Bearings, Anti-Friction Bearings, Steel Shafting, Shafting Couplings, Shafting Hangers, Microal Bearing Metals, Porous Bronze Bushes, Gears, Pulleys, Wall Brackets, Variable-Speed Drives, Ludowici Pivot Drives, Flat-Soot Oil Retainers, Composition Packings, Latex Industrial Practices, Industrial Gloves, Rubber Hoses, Lateral Trucks, Wirealls, Casters, etc., Ferry Chain Drives.



# SERVIAN

## MACHINE TOOLS OF *Quality*



### Distributors All Over Australia . . .

No matter in what State your factory is located, there is a Servian Distributor nearby to give you prompt service and technical advice. Write or 'phone nearest representative for details of any type of Machine Tool you require.

#### NEW SOUTH WALES:

Servian Machine Tools (Syd.) Pty. Limited

(Sole Agents)

Distributors:

Wm. Adams & Co. Pty. Ltd.  
Cleveland Machinery Co. Pty. Ltd.  
Dunco Machinery Co. Ltd.  
Gilbert Lodge & Co.  
H. F. Gregory & Co.  
Goodall & Co.  
A. G. Hesling Ltd.  
Paul & Gray Ltd.  
McPhersons Ltd.  
Sorby's Ltd.  
Wm. Thornley & Sons Pty. Ltd.  
Westcott Hazell & Co.

#### WEST AUSTRALIA:

Wm. Adams & Co. Ltd. (Sole Agents).

#### VICTORIA:

William Adams & Co. Ltd.  
Bennie Teare Pty. Ltd.  
Brooklands Accessories.  
Wm. L. Buckland Pty. Ltd.  
Cameron & Sutherland Pty. Ltd.  
N. Durance & Co.  
Gilbert Lodge Pty. Ltd.  
A. G. Hesling Ltd.  
Keep Bros. & Wood Pty. Ltd.  
E. A. Machin & Co.  
Motor Spares Limited.  
H. Osborne.  
Replacement Parts Pty. Ltd.  
Henry Richardson Pty. Limited.  
S. Robertson Pty. Ltd.  
Alfred Stewart Pty. Ltd.  
Eliza Tinsley Pty. Ltd.  
Frank Vial and Sons.  
Westcott Hazell Eng. Co.

#### QUEENSLAND:

E.S.C.A. Ltd.  
A. G. Hesling Ltd.  
Intercolonial Boring Co. Ltd.  
Martin Wilson Bros. Pty. Ltd.  
Queensland Machinery Co. Limited.

#### SOUTH AUSTRALIA:

A. G. Hesling Ltd.  
Colton, Palmer & Preston Ltd.  
Cornell Limited.  
Duncan & Co.  
Laphorne's Ltd.

#### TASMANIA:

C. Davis Limited.  
W. & G. Genders Pty. Ltd., Hobart, Burnie,  
Devonport, Launceston.

Manufactured in Australia by SERVIAN MACHINE TOOLS (AUSTRALIA) PTY. LIMITED,

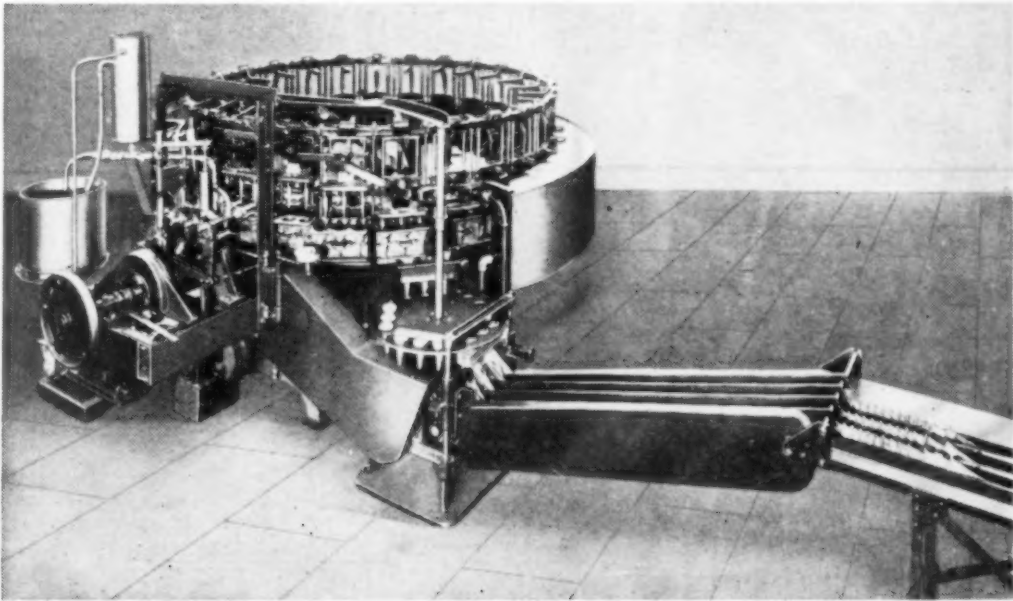
9 Albert Street, Brunswick, Vic. 'Phone: FW 2111.

SOLE EXPORT AGENTS: Kemsley & Co. Proprietary Ltd., 109 Russell Street, Melbourne.

Cable and Telegraphic Address: "KEMSLEYS," Melbourne.

## "SERVIAN MEANS SERVICE"





## **Leadership** proved by numbers of achievements . . . **HERE IS ANOTHER!**

### **THE C.C. ICE CREAM CONE MACHINE**

The "built-in" accuracy of "C.C." Products has assisted many manufacturers in planning production. For many years "C.C." has been engineering, designing and producing machines that meet the demands of modern industry for greater accuracy, higher speed and easier operation.

A typical case is the Ice Cream Cone Machine, illustrated above, which is totally automatic. This is another example where the versatility and advanced engineering of "C.C." solved a very difficult problem.

#### **Other "C.C." Products include:—**

Universal Tool and Cutter  
Grinders, Surface Grinders,  
Lathe Chucks, Hydraulic  
Presses, Swaging Machines,  
Arbor Presses, Printers' Saw  
Benches, Eye Protection  
Shields, Duncan Strapping  
Machines, Logging Saws, Drop  
Hammers, Gauges.

Telephone:  
MW 2757  
(4 lines)

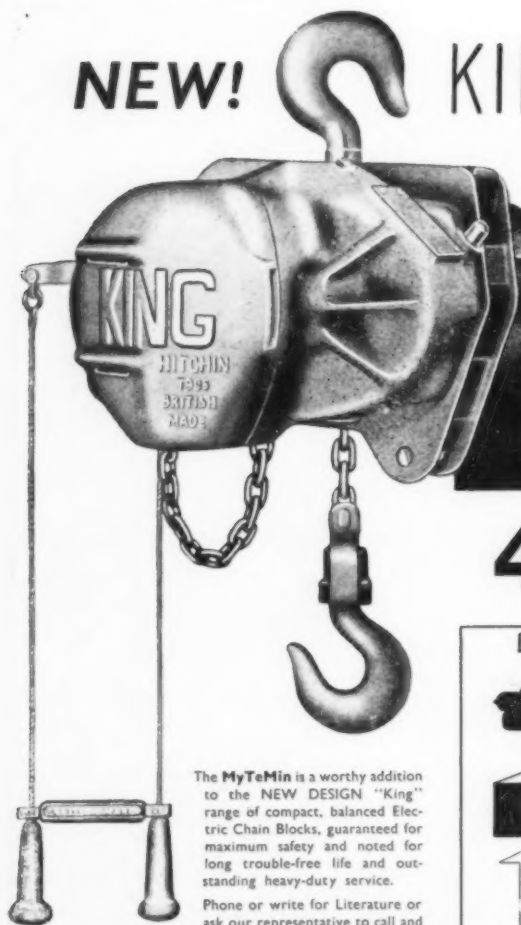


**ENGINEERING  
INDUSTRIES Ltd.**

Cables and  
Telegrams:  
"Toolengco,"  
Sydney.

**213 BRIDGE ROAD, GLEBE, N.S.W.**

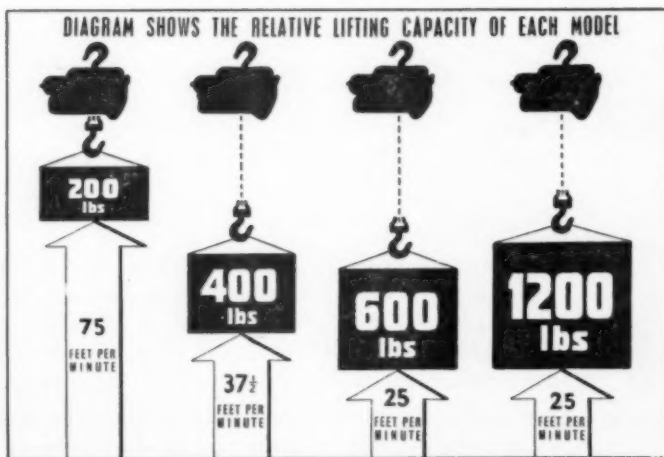




# NEW! KING Lightweight Electric Block INCREASES PRODUCTION

## MyTeMin ELECTRIC CHAIN PULLEY BLOCK

**4** MODELS to suit every individual need — EARLY DELIVERY!



The MyTeMin is a worthy addition to the NEW DESIGN "King" range of compact, balanced Electric Chain Blocks, guaranteed for maximum safety and noted for long trouble-free life and outstanding heavy-duty service.

Phone or write for Literature or ask our representative to call and tell you more about the MyTeMin and all "King" equipment

for the efficient and reliable lifting and shifting of loads, FROM 200 LBS. TO 10 TONS.

Each capacity and type of "King" Electric Chain Block may be equipped with Push Type, Hand-Geared or Power Trolleys as required.

### 14 PATENTED FEATURES

Self-adjusting Disc Type Load Brake . . . Additional Motor Brake . . . Combined Load Sprocket and Spur Wheel . . . Leak Proof Oil Seals . . . Pendant Cord Control . . . Limit Gear . . . Robust Steel Mainframe . . . Reversing T.P. Controller . . . Controller Housing . . . All Gears and Shafts Splined for Strength . . . Heavy Duty Bearings Fitted Throughout . . . Special Totally Enclosed High Torque Winding Motor . . . Automatic Chain Guard Assembly . . . Precision Ground Alloy Steel Gears.

## MECHANICAL HANDLING LTD.

Formerly MAGNUS INDUSTRIAL EQUIPMENT PTY. LTD.

368 COLLINS ST., MELBOURNE — PHONE MU6957 (3 lines)

CONSULTANTS AND SPECIALISTS IN MECHANICAL HANDLING EQUIPMENT • CONVEYING ENGINEERS • CONTRACTORS AND ERECTORS.

NEW SOUTH WALES  
MECHANICAL HANDLING LTD.  
1 Unwin's Bridge Rd., ST. PETERS  
Phone LA 3329

QUEENSLAND  
BOURKE & RADFORD  
129 Adelaide St., BRISBANE  
Phone B 3070

SOUTH AUSTRALIA  
PASCOE & CO. LTD.  
282 Port Rd., WOODVILLE  
Phone M 7127

### ★ MECHANICAL HANDLING LTD.

Sole Australian Distributors and Manufacturers (under licence) for Geo. W. King Ltd., of England — Europe's largest manufacturer of Materials Handling Equipment — "KING" ELECTRIC CHAIN BLOCKS — 200 LBS. TO 10 TONS . . . "MAGNUS-KING" OVERHEAD TRAVELLING, WHARF, AND GANTRY CRANES — UP TO 120 TONS . . . "MAGNUS-KING" CONVEYORS OF ALL TYPES . . . "MAGNUS-KING" MONORAIL, SUPER TRACK, TROLLEYS, SWITCHES, CABLE REELS AND "SAFELEC" BUSBARS.

M20-AM